Volume 84
Number 22

IRON TRADE REVIEW

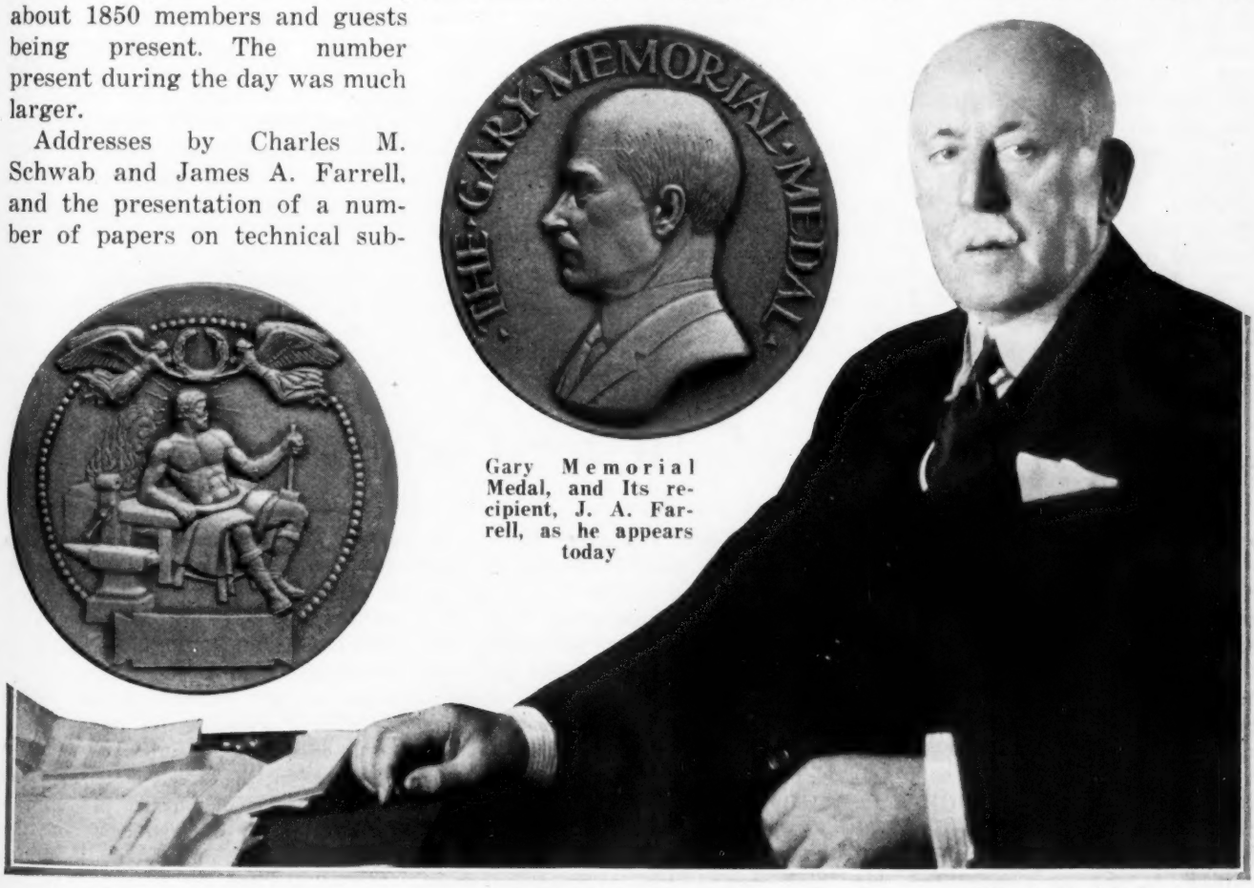
Cleveland, O.
May 30, 1929

Steel Institute Leaders Point Way to Sustained Prosperity

Confidence, with Caution Against Unbridled Expansion, Is Keynote of Meeting—Record Attendance at Banquet—Gary Medal Awarded to James A. Farrell

WITH conditions in the steel industry the most favorable since the war, the keynote of the thirty-fifth general meeting of the American Iron and Steel institute, at the Commodore hotel, New York, May 24, was one of confidence. Attendance at the banquet set a record, about 1850 members and guests being present. The number present during the day was much larger.

Addresses by Charles M. Schwab and James A. Farrell, and the presentation of a number of papers on technical subjects were the principal events of the morning and afternoon sessions. The banquet was featured by the presentation to Mr. Farrell of the Gary memorial award, established recently by the institute, and awarded for the first time, for distinguished service to the American iron and steel



Gary Memorial Medal, and Its recipient, J. A. Farrell, as he appears today

Photo by Blank-Stoller Inc.

industry. Mr. Schwab, as institute president, sounded a note of warning against unwarranted expansion in the steel industry, contending that the rated capacity of the industry now is being exceeded by production, and the creation of overcapacity can only serve to precipitate another profitless period. Last year companies representing 70 per cent of the industry earned only 6.35 per cent on their investment, and he said that for an industry which is depleting its resources so rapidly as steel, such returns are not sufficient.

Mr. Farrell, vice president of the institute, was called on for remarks, and said he believes in making the most effective use of existing equipment prior to making additions to present capacity. He told of the increased production which Steel corporation subsidiaries have been able to get by patching up old open-hearth furnaces. He deplored talk about reducing wages in the steel industry, and thought such reductions would be "the surest way of killing off our present prosperity." Present wages in the steel industry, he said, are not too high.

Iron Stands Supreme

Dr. R. A. Milliken, one of the country's foremost scientists, was the principal speaker at the banquet. The elements of the earth now are known, he said, and a study of the different elements brought him to the conclusion no metal ever will displace iron for structural purposes, transportation and similar uses where strength and permanence are required. Iron not only serves ideally, but it is plentiful, and no other metal that would take its place is present in sufficient quantities.

Dr. Glenn Frank, president, University of Wisconsin, spoke at the banquet, on the past, present and future of the machine age. There are many indictments to be brought against the machine age, he said, but believed that the machine eventually would free mankind from hard toil and drudgery and give him more time to create art and beauty and develop as a human being. Marcel Knecht, French journalist, also delivered a brief address at the banquet, expressing the pleasure of the steelmasters of France and Luxemburg over the award of the Gary medal to Mr. Farrell.

Technical papers read at the morning and afternoon sessions were as follows: "Past, Present and Future of Illinois Coals," Prof. S. W. Parr, University of Illinois, Urbana, Ill.; "Silica as a Refractory in the Steel Industry," R. B. Sosman, research department, United States Steel Corp., New York; "The Use of Blast Furnace and Coke Oven Gas in Open-Hearth Furnaces," Frank H. Leahy, Youngstown Sheet & Tube Co., Youngstown, O.; "Large Open-Hearth Furnaces," Frank A. King, superintendent open-hearth department, Weirton Steel Co., Weirton, W. Va.; "The Theory and Application of Regenerative Principles in the Steel Industry," T. J. McLoughlin, fuel engineer, Duquesne Works, Carnegie Steel Co., Duquesne, Pa.; "Some X-Ray Studies of Cold Worked Steel," F. C. Elder, chief metallurgist, American Steel & Wire Co., Cleveland; "Functions of Steel Plant Metallurgy," R. E. Sherlock, metallurgical engineer, Donner Steel Co., Buffalo.

Many interesting discussions followed the reading of these papers. H. C. Porter, consulting engineer, Philadelphia, and J. D. Davis, United States bureau of mines experimental station, Pittsburgh, discussed the paper by Mr. Parr. The paper by Mr. Sosman was discussed by Dr. J. S. Unger, director of research, Carnegie Steel Co., Pittsburgh, and Walter H. Kelly, refractories engineer, Bethlehem Steel Co., Bethlehem. The paper by Mr. Leahy was discussed by E. F. Entwisle, superintendent, Saucon division, Bethlehem Steel Co., Bethlehem, and A. G. Whitting, assistant engineer, Gary Works.

J. L. Danforth, assistant general superintendent, Illinois Steel Co., South Chicago, discussed the paper by Mr. King. The paper by Mr. McLoughlin was discussed by Martin J. Conway, fuel engineer, Lukens Steel Co., Coatesville, Pa., and A. T. Miller, superintendent of open-hearth furnaces, Inland Steel Co., Indiana Harbor, Ind. A. B. Kinsel, Union Carbide & Carbon Research Laboratories, Long Island City, discussed the paper by Mr. Elder. H. W. Graham, chief metallurgist, Jones & Laughlin Steel Corp., Pittsburgh, and O. L. Pringle, assistant general superintendent, Pittsburgh Crucible Steel Co., Midland, Pa., discussed the paper by Mr. Sherlock.

Present Officers Re-elected

Directors of the institute at their luncheon meeting re-elected the present officers and also reappointed present standing committees. Samuel Mather, Cleveland, was introduced by Mr. Schwab at the morning session as the outstanding investor in the steel industry and a man of great influence in the industry. Mr. Mather expressed his gratification over the fact that the prosperity in the steel industry has resulted in some increases in the prices of iron ore which had been selling at about cost. John A. Topping, chairman, Republic Iron & Steel Co., also introduced at the morning session, declared that optimistic feelings in the steel industry are justified as there is nothing to worry about in connection with the near future.

Farrell Wins Gary Medal for Constructive Service

THE first annual award of the Gary memorial gold medal was made to James A. Farrell because of his thorough and effective service to the steel industry and to the United States. In the words of the certificate of award accompanying the medal, it is for "outstanding constructive and patriotic achievement."

Ever since his election as president of the Steel corporation in 1910, and particularly since the death of Elbert H. Gary, Mr. Farrell is regarded as having discharged his duties in such a manner as to make the largest steel producing interest in this country exercise its leadership so as to win for the Steel corporation the respect of labor, the public, the government, steel consumers and com- in this country exercise its leadership supplied by the Steel corporation has helped to win respect and popular approval for the steel industry generally. The particular phase of Mr. Farrell's execution of the Steel corporation's policies, which is held in high regard, is his insistence on a stable price for steel, as far as the Steel corporation is concerned, and it is said by competitors that the Steel corporation on many occasions has lost business rather than assist in demoralizing the price structure.

One of Mr. Farrell's actions which is believed generally to have had a good effect on stimulating friendly relations in the steel industry, was his nomination of Charles M. Schwab for the office of president of the American Iron and Steel institute.

(*Concluded on Page* 1474)

Photo by Blank-Stoller Inc.

Steel Distribution Must Be Rationalized

Regulating Output to Demand Great Task Before the Industry—Returns Still Too Low

By Charles M. Schwab

"I believe steel has really entered a new era of usefulness," says the president of the American Iron and Steel institute. "But we should not allow our optimism to blind us to the truth that earnings are far from adequate to provide for the industry's future service to the country." The following article is an abstract of his address to the institute in New York, May. 24.

THE steel industry is enjoying its greatest peace-time prosperity. The significance of the situation is the real point to which our most earnest and careful consideration should be directed. It is a peculiar quirk of human nature that business men seem to be more cautious of their steps in times of depression than in times of prosperity. Yet it seems to me that a time like this is the golden opportunity for industry in general, and for our own industry in particular, to weigh and determine our future course. Certainly we should have the intelligence and the ability, as well as the practical experience, to maintain only those practices and policies that will assure our continuous progress.

The steel industry is experiencing the greatest demand in its history. It is gratifying to note that during the year 1928 the ingot production for the country exceeded that of any previous year by 6.7 per cent and that production so far this year is at a rate 11.7 per cent higher than it was for the same period last year. With practically all our plants working at capacity, with a large demand assured for some months to come, with the uses of steel increasing in every direction, we have every reason to look confidently into the future.

This prosperous condition of our industry must not blind us to the fact that we can be led astray quicker through prosperity than through adversity. In that respect the record of past experience offers enlightening guidance. Let us avoid becoming self-satisfied. There are greater opportunities and incentives than ever before to improve our methods, to improve the quality of our products and to expand the markets for them. It is more necessary now than ever before to rationalize our actions.

Earnings Inadequate

As the expansion of the country's prosperity proceeds, some enlargement of our steel producing capacity may be required. But never before was it more incumbent upon us to temper our new plans with good judgment, to avoid speculative building, and to profit by the errors and mistakes of the past. We all know that the steel industry has paid dearly for over-expansion in the past, and many industries in this country still are suffering from the same evils forced by the war. Indeed our own industry has but lately caught up with expansion due to this cause. Nothing causes business depression quicker than endeavoring to produce in excess of demand.

Our manufacturing facilities, while utilized practically to their full extent at the moment, are far from being unduly strained. May they not yet be capable of still further production? Certainly this is the essential question to be answered now. It is rather astounding that record after record is being broken with substantially the same plant and the same personnel. In this favorable situation we find concrete evidence of the benefits of mechanical development, of the utilization of horsepower, and of the greater efficiency and teamwork of workers and management.

Consolidations within the industry which have been effected in recent years have had a salutary effect in affording better control, co-ordination and utilization of existing facilities with consequent benefit to the employes and the consuming public. The steel industry has demonstrated in a most practical way the truth of the old adage "you never know what you can do 'till you try." And we have not yet exhausted the possibilities of that effort. In any event I cannot emphasize too strongly the fact that the intelligent relating of production to consumption is the most vital and fundamental element in the success of any business.

Because of the large demand for steel it is generally believed that our industry is in a highly prosperous condition, but we should not allow the optimism caused by this demand to blind us to the serious economic truth that the earnings on the large investment in the steel business are far from adequate to provide for the industry's future service to the country. Last year the return on investment of companies representing 70 per cent

(*Concluded on Page* 1470)

Variety Characterizes Seven Institute Papers

R. E. SHERLOCK

METALLURGY as applied to and in the steel industry, has always been the specialized study of R. E. Sherlock, metallurgical engineer of the Donner Steel Co. Inc., Buffalo, who presented the paper entitled "Functions of Steel Plant Metallurgy." His entire business career since he was graduated from Cornell university in 1914 has been devoted to the steel industry, a period wherein so much attention has been paid to chemical analysis and structure of steels, because of the increasingly exacting demands being made upon them. For nine years after graduation, Mr. Sherlock was associated with the United Alloy Steel Corp., Canton, O., in its metallurgical department and in 1923 he was appointed metallurgical engineer by the Donner company, the position he now holds.

FRANK A. KING

OPEN-HEARTH furnace operation has received the attention of Frank A. King, during his entire business career of 29 years. He therefore was well qualified to present a paper on "Large Open-Hearth Furnaces" since his experience has covered development of this equipment from the early 15 and 20-ton outfits to the present 150 and 200-ton units. Born and reared near Cleveland, he entered the employ of the Otis Steel Co. there in 1900. After three years in Cleveland, he was employed for a few months at the Clairton, Pa., steel plant of the Carnegie Steel Co., and early in 1903, he went to Pueblo, Colo., where the Colorado Fuel & Iron Co. started its open-hearth department. He was employed there for seven years in every position from charging machine to furnace helper and foreman melter. In 1910 he was made foreman melter at the Ohio works of the Carnegie Steel Co., Youngstown, O., and in 1913 he discharged similar duties at the then new open-hearth plant of the Youngstown Sheet & Tube Co. He remained there until 1920, when he was placed in charge of the Weirton Steel Co.'s open-hearth installation as superintendent, where he since has remained.

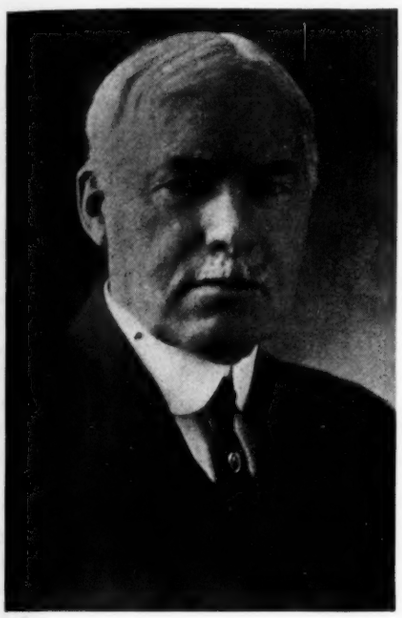
R. B. SOSMAN

IMPORTANCE of refractories in the iron and steel industry has long been recognized. They have occupied much of the time and study of R. B. Sosman, affiliated since 1928 as physical chemist with the research laboratory of the United States Steel Corp., located at the plant of the Federal Shipbuilding & Dry Dock Co., Kearny, N. J. Mr. Sosman's paper was "Silica As a Refractory in the Steel Industry." He was born in 1881 in Chillicothe, O., and was graduated from Ohio State university in 1903 in chemistry, and in physics in 1904 from the Massachusetts Institute of Technology, where in 1907 he received his Ph. D. degree. He spent about two years with Arthur D. Little Inc., Boston, chemical engineer and consultant, and from 1908 to 1928 he was physicist at the geophysical laboratory of the Carnegie Institution, Washington, engaged in researches on high-temperature thermometry (pyrometry), and the properties of oxides and silicates at high temperatures, especially silica and the oxides of iron. He collaborated with Arthur L. Day in the establishment of the high temperature scale in terms of the standard gas thermometer. He is the author of "The Properties of Silica." He was acting director of the geophysical laboratory from 1918 to 1920 and served a term (1928) as president of the Washington Academy of Sciences. He is a member of numerous other scientific bodies, several of which he has served in executive capacities and on committees.

All Authors Expert In Their Chosen Vocations

T. J. McLOUGHLIN

CONTINUOUS employment for more than 15 years with one company, the Carnegie Steel Co., Pittsburgh, furnished T. J. McLoughlin a background of experience which enabled him to discuss the subject "The Theory and Application of Regenerative Principles in the Steel Industry." For 10 years he was engaged in various operating capacities in blast furnace, open-hearth furnace and rolling mill work, where he acquired much knowledge of the use of fuel and methods of operation of these various units of equipment. At present Mr. McLoughlin is fuel engineer at the Duquesne, Pa., works of the Carnegie company, where, for more than five years, he has been engaged in fuel and special engineering work. He is a graduate of Stevens Institute of Technology and a member and director of the Engineers' Society of Western Pennsylvania.



S. W. PARR

PROF. S. W. PARR has for a long time been an authority on low temperature carbonization of coal. He has contributed many treatises to trade and scientific publications and lectures at various meetings of coal organizations. He told members of the institute "The Past, Present and Future of Illinois Coals." Samuel Wilson Parr is professor emeritus of industrial chemistry in the University of Illinois, Urbana, Ill., where he has been a professor since 1891. He was born in Granville, Ill., Jan. 21, 1857, and was graduated from the University of Illinois in 1884 with the degree of bachelor of science. He received his M. S. degree from Cornell university in 1885 and later studied at the University of Berlin and at the Polytechnikum in Zurich. He is past president of the American Chemical society, a former director of the Illinois state water survey, and since 1905 consulting chemist on coal investigation in the Illinois state geological survey. He devised the Parr calorimeter for determining heat value of coal and other hydrocarbons; a new type of calorimeter for determining heat value of combustible gases; a new alloy with acid resisting properties; and a new calorimeter bomb with effective platinum substitution in its construction.

F. C. ELDER

CHIEF metallurgist of the American Steel & Wire Co., Cleveland, with which interest he has been identified ever since he obtained his metallurgical engineer degree from the school of mines, Columbia university, when he was graduated with the class of 1910, F. C. Elder presented the interesting results of some of his recent experiments with the X-ray. His subject was, "Some X-Ray Studies of Cold Worked Steel," Shortly after graduating, Mr. Elder became affiliated with the American Steel & Wire Co. at Worcester, Mass. In 1916 he was transferred to Cleveland and placed in charge of its physical laboratory. Three years later he was appointed chief metallurgist, devoting his entire time to improvement of steel going into the company's wire mills and other products.

FRANK H. LEAHY has for some time been connected with the open-hearth furnace department of the Youngstown Sheet & Tube Co., Youngstown, O., where both blast furnace and coke oven gas are utilized. His paper was on "The Use of Blast Furnace and Coke Oven Gas in Open-Hearth Furnaces."

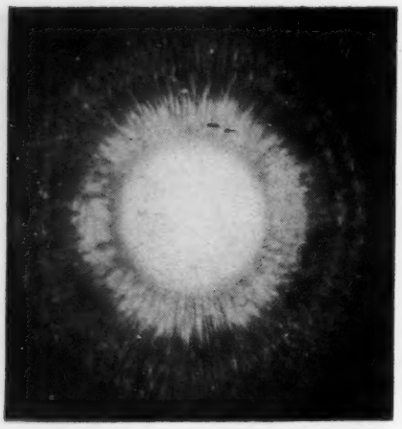


Fig. 1—Photograph of a low carbon annealed wire

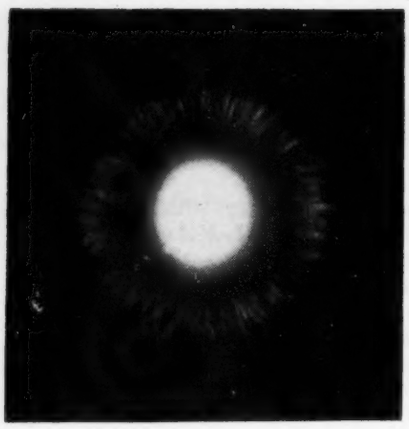


Fig. 2—Low carbon annealed wire, stretched—Reduction of area 2 per cent

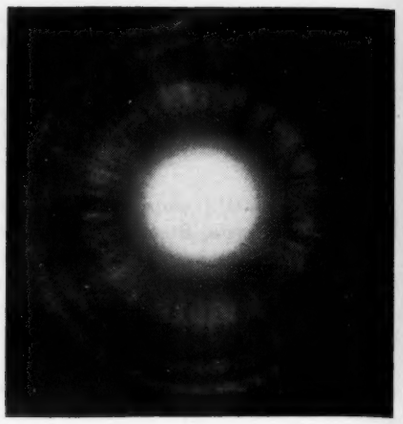


Fig. 3—Low carbon annealed wire, stretched—Reduction of area 5 per cent

Employs X-Rays To Examine Effect of Cold Working of Steel

Method Offers Possibilities in Attacking Problems—Research on Wire Indicates Persistency of Structure Despite High-Temperature Annealing

By J. C. Elder

Chief Metallurgist, American Steel & Wire Co.

SINCE 1912, when Laue predicted that crystals should serve as three dimensional gratings causing diffraction of X-rays and the subsequent verification of this prediction by several investigators, the study of the crystal structure of metals has progressed with much rapidity. There are several different methods which may be used in the X-ray examination of metals depending on the nature of the study being made, but on account of its particular adaptability in studying the effect of cold work on metals an adaptation of the Hull method, known as the "pin-hole method," has been used in producing all photographs given in this paper.

In this pin-hole method characteristic line-spectrum X-rays are passed through a slit system made up of a series of lead diaphragms each provided with a pin-hole, in order to get an X-ray beam composed of rays which are parallel, or as nearly parallel as possible. The specimen is

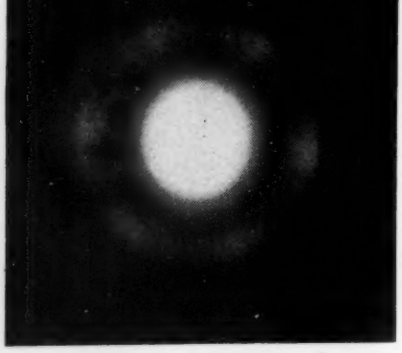


Fig. 4—Low carbon annealed wire, stretched—Reduction of area 15 per cent

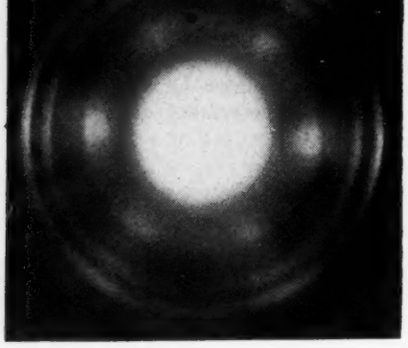


Fig. 5—Low carbon annealed wire, stretched—Reduction of area 74 per cent

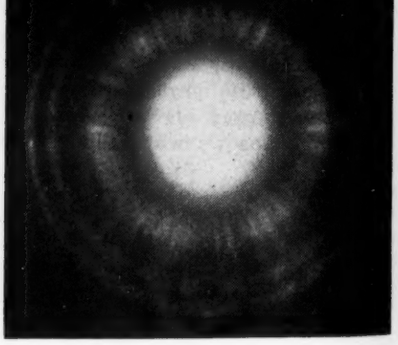


Fig. 6—Low carbon annealed wire, drawn—Reduction of area 5 per cent

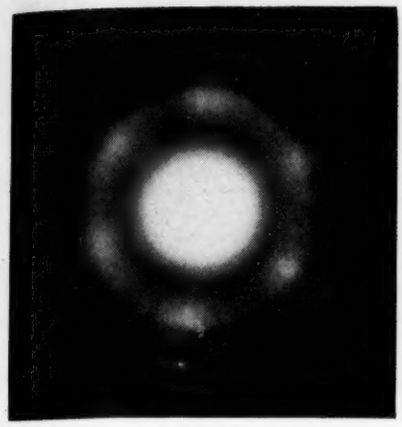


Fig. 7—Low carbon annealed wire, drawn—Reduction of area 15 per cent

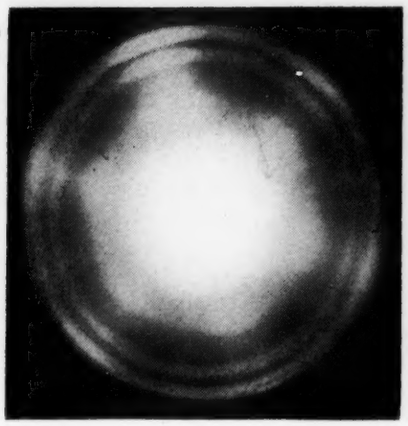


Fig. 8—Low carbon annealed wire, drawn—Reduction of area 40 per cent

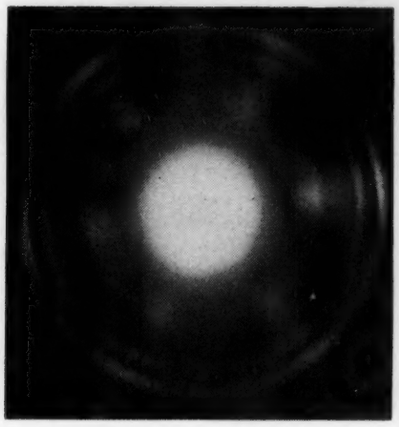


Fig. 9—Low carbon annealed wire, drawn—Reduction of area 74 per cent

mounted directly over the pin-hole in the diaphragm which is the farthest from the Coolidge X-ray tube and the photographic plate is set up in a plane normal to the X-ray beam, in our case 2½ inches back from the specimen.

All our specimens, except where otherwise noted, were longitudinal sections, that is, sections taken parallel to the direction of the cold work and taken along the axis of the wire. Each specimen was carefully ground and polished down to a thickness of 0.006-inch plus or minus 0.001-inch and, after polishing, etched with acid in order to remove the surface effected by the grinding and polishing.

Fig. 1 shows an X-ray photograph of a low carbon (0.08 to 0.10C) annealed wire. The large white circular area in the center of the photograph is the halation produced by the primary X-rays, that is, the rays which passed directly through the specimen practically without diffraction. This area, therefore, gives us no information as to the crystalline structure of the metal. The annular area immediately surrounding the white bull's eye contains images produced by a series of relatively short wavelength rays, which have been diffracted by the crystalline planes in the specimen. The second ring outside the annular zone just described is caused by the characteristic X-rays called the K alpha doublet—"doublet" since in reality it is made up of two wavelengths very close together. The ring is produced by the diffraction in the (110) crystal planes of this characteristic K alpha doublet. The first ring is the K beta ring, and still further out from the center are other rings, which are shown only faintly in these photographs but which can be brought out by longer exposures or higher amperage. This photograph shows that the specimen has been well annealed as far as the removal of the previous cold work is concerned.

Fig. 2 is an X-ray photograph of a low carbon wire which had been annealed similarly to that shown in Fig. 1 and then cold worked a very small amount by stretching in a tensile machine, so that its area of cross section has been reduced 2 per cent.

Fig. 3 is a photograph of the an-

LITTLE has been published on X-ray examination of cold-worked steel, thus meager information is available to the metallurgist and others interested chiefly in the fabrication of steel as to the possibilities of the new instrument. Therefore, in presenting the accompanying paper before the spring meeting of the American Iron and Steel institute in New York last week, the author, F. C. Elder, chose material to give a general picture of possibilities of the X-ray method in the study of cold working of steel, instead of illustrating the solution of any specific problem by that means. Mr. Elder is chief metallurgist, American Steel & Wire Co., Cleveland.

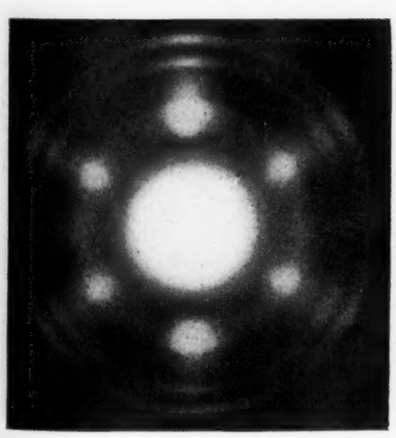


Fig. 10—Low carbon annealed wire, drawn—Reduction of area 80 per cent

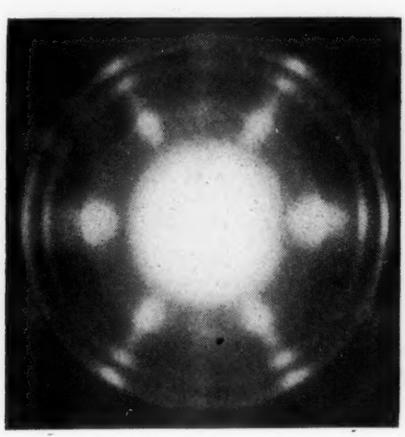


Fig. 11—Low carbon annealed wire, drawn—Reduction of area 98 per cent

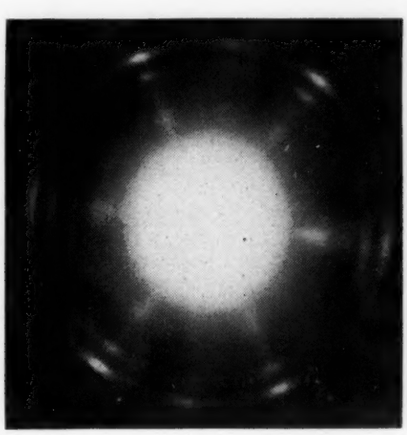


Fig 12—Low carbon annealed wire, drawn—Reduction of area 99½ per cent

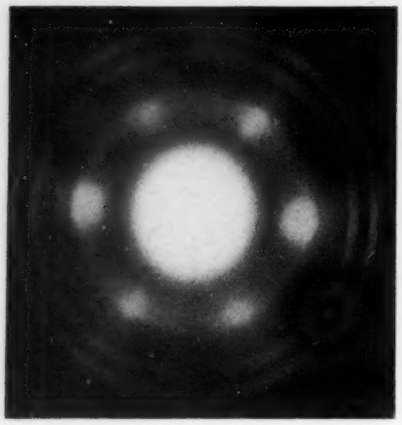


Fig. 13—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 700 degrees Fahr.

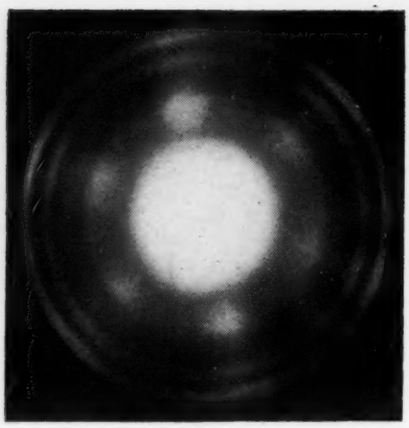


Fig. 14—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 900 degrees Fahr.

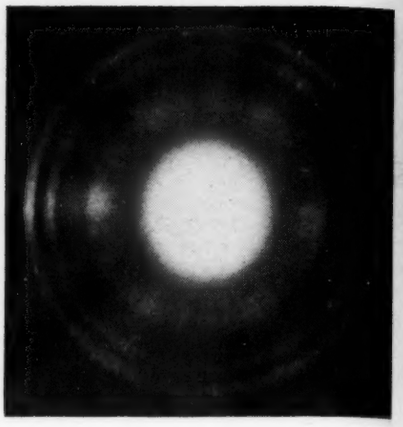


Fig. 15—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1000 degrees Fahr.

nealed wire, which has been stretched 5 per cent. Here the change of crystalline structure has become very marked, although the same tendency was shown in Fig. 2, which was only stretched 2 per cent. Radial lines, called radial asterism, are observed extending outwards from the center. The images in the annular zone surrounding the white center spot have become very diffuse, and the same is true of the images in the K alpha and K beta rings. This change is brought about by the fragmentation of the crystals during the stretching.

Fig. 4 is a photograph of the wire after stretching 15 per cent. Practically all images have disappeared from the "white" radiation zone, as well as from the K alpha and K beta rings, due to nearly complete fragmentation of the crystals. In addition, we note the first appearance of six white spots in the "white" radiation zone, with corresponding, although fainter, markings on the K alpha and K beta rings. This new characteristic is commonly referred to as "fibering" or preferred orientation, and is brought about by the turning of the crystal units by the cold work so that their (110) planes approach a position normal to the direction of the cold work, that is, normal to the axis of the wire.

Studied Near Breaking Point

Fig. 5 is a photograph of the wire which has been stretched in the tensile machine until it has necked down locally and is practically at the breaking point. This photographs was taken at the necked down portion of the wire where its cross section had been reduced by the cold stretching 74 per cent. It will be observed that no small images are visible in the white radiation zone, or in the K alpha and K beta rings. The six white spots showing the preferred orientation, and observed on the previous photograph, have now become much more intense, indicating a still closer approach of the crystal (110) planes to a position normal to the axis of the wire.

For comparison we next show photographs of low carbon wires which have been cold drawn through a die, various amounts from 5 to 99½ per cent reduction in area. The similarity of these photographs to the photographs of wires cold stretched equal amounts will at once be evident.

Fig. 6, a photograph of a wire drawn through a die producing 5 per cent reduction in area should be compared with Fig. 3, showing a wire cold stretched 5 per cent.

Fig. 7 of a wire drawn through a die of 15 per cent reduction in area compares with Fig. 4, which is of a wire cold stretched a like amount.

Fig. 9, of a wire drawn through a die of 74 per cent reduction in area should be compared with Fig. 5, which is of a wire stretched a like amount. In spite of the fact that the cold drawing was accomplished not in a single draft, but in several, the final effect on the crystalline structure seems to be practically identical with that brought about by cold stretching a wire a similar amount but in one operation.

In Figs. 10, 11 and 12, X-ray pho-

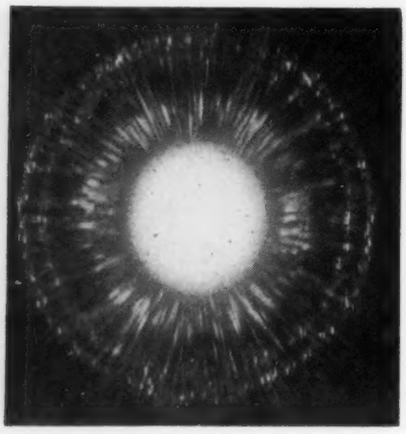


Fig. 16—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1100 degrees Fahr.

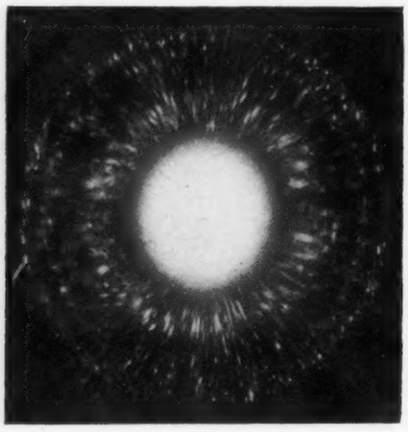


Fig. 17—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1200 degrees Fahr.

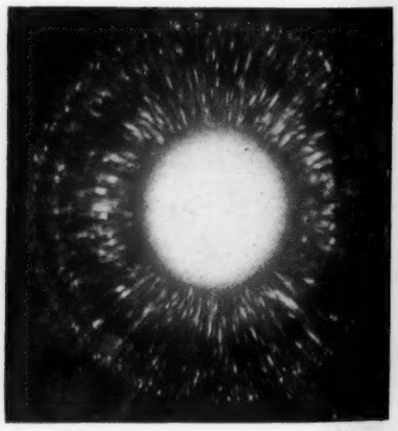


Fig. 18—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1300 degrees Fahr.

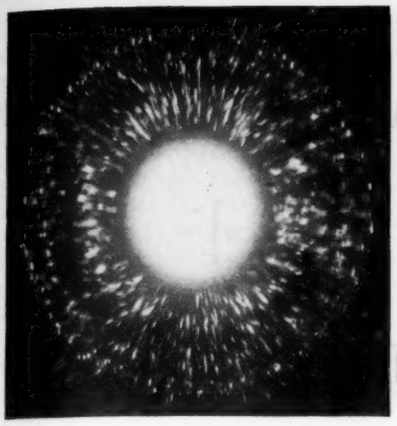


Fig. 19—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1400 degrees Fahr.

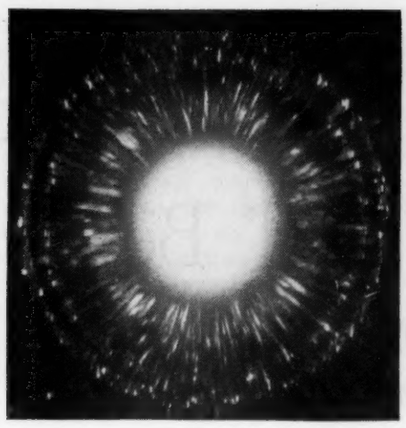


Fig. 20—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1500 degrees Fahr.

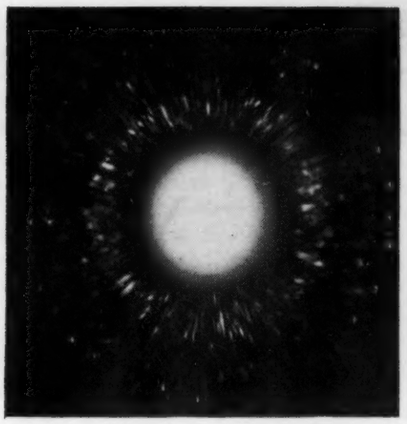


Fig. 21—Wire, cold drawn—Reduction of area 40 per cent—Annealed one hour at 1600 degrees Fahr.

tographs of wires drawn 80, 98 and 99½ per cent respectively, it will be observed that the spots denoting preferred orientation cover smaller and smaller areas but grow in intensity as the amount of cold work increases. Also, commencing with the photograph showing 98 per cent reduction two additional spots appear which become more pronounced, at least in the K alpha and K beta rings, in the photograph showing the wire drawn 99½ per cent reduction. It will also be observed that in the photographs showing the wires drawn 98 to 99½ per cent, spots indicative of preferred orientation are visible even on the rings far beyond the K. alpha ring.

We will show next what changes take place in the pin-hole pattern of cold drawn wires when they are annealed at various temperatures, *i. e.*, wire cold drawn 40 per cent and annealed at various temperatures, and wire cold drawn 80 per cent reduction in area and annealed at corresponding temperatures.

Fig. 13, X-ray photograph of a wire cold drawn 40 per cent reduction in area and annealed for one hour in a lead bath at 700 degrees Fahr., appears similar to Fig. 8, that of the wire prior to annealing.

Fig. 14 of this wire annealed at 900 degrees Fahr. begins to show a change in the pattern, as the spots showing the preferred orientation are growing dimmer and less sharp.

Recrystallization Takes Place

Fig. 15 of this wire annealed at 1000 degrees Fahr. shows a marked decrease in preferred orientation and images of the crystalline planes are evident denoting recrystallization.

In Fig. 16 showing this wire annealed at 1100 degrees Fahr. recrystallization has progressed to a marked degree, as shown by the increase in number and in size of the grain images. Also all trace of preferred orientation has disappeared.

In Fig. 17 of this wire annealed at 1200 degrees Fahr. the number of crystal images has still further increased and the radial asterism, which appeared in Fig. 16, has disappeared.

In Fig. 18, 1300 degrees Fahr. annealed structure, the crystal images have still further increased in size and in number. Also the images in the "white" radiation area have become more defined than in Fig. 17.

In Fig. 19, 1400 degrees Fahr. annealing temperature, the change in structure continues along the lines already noted. The number of sharply defined images on the K alpha ring has appreciably increased, and many well-defined images are seen out beyond the K alpha ring.

In Fig. 20, 1560 degrees Fahr. annealing temperature, there is a further increase in image size most noticeable on the K alpha and K beta rings.

At 1600 degrees Fahr. annealing temperature, Fig. 21, the last of this series, there seems to be a partial grain refinement, since although there are still some fairly large images the most of them are much smaller than in the preceding X-ray photograph. Also the K alpha and K beta lines are commencing to disappear, which probably indicates the approach to a completely random distribution of

(*Concluded on Page* 1474)

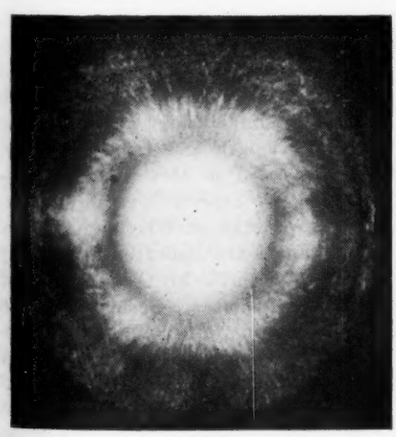


Fig. 22—Wire, cold drawn—Reduction of area 80 per cent—Annealed one hour at 1000 degrees Fahr.

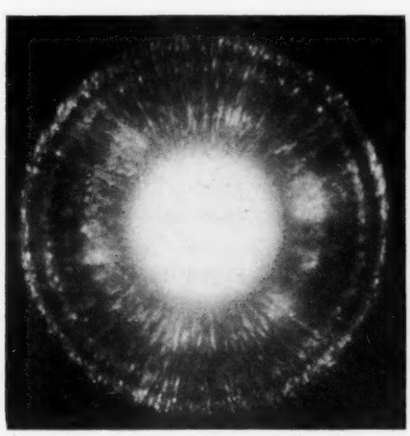


Fig. 23—Wire, cold drawn—Reduction of area 80 per cent—Annealed one hour at 1200 degrees Fahr.

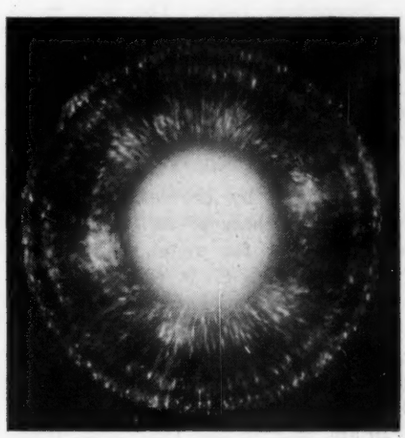


Fig. 24—Wire, cold drawn—Reduction of area 80 per cent—Annealed one hour at 1400 degrees Fahr.

Large Open Hearths Show Increased Yield and Better Steel

Units of 250 to 350 Tons Capacity Use Less Limestone Per Ton of Output—Fuel Consumption Also Proves More Economical

By Frank A. King

Superintendent, Open-Hearth Department, Weirton Steel Co.

THROUGHOUT the history of the modern iron and steel industry the question of the size and capacity of the open-hearth furnace has been one of most importance. As compared with the increase in size of blast furnaces on the one hand and the blooming mill on the other, the problem of open-hearth development has been second to none; and there has been relatively less time to spend in order to find its solution.

Perhaps the more important advance in the development of open-hearth capacity has been in furnaces installed during the last few years and among these the progressing installation of the open-hearth plant of the Weirton Steel Co. has been particularly representative.

A brief and general statement of its history will make clear its typical position in the best and most progressive of modern practice. The plant at present includes 12 stationary-type furnaces of from 150 to 350-ton capacity. Building and plans for seven furnaces were originally started and the first heat was poured in November, 1920. The first heats were approximately 105 tons, but were rapidly increased to about 130 tons, and for some time this practice was pushed; later all seven furnaces were increased in capacity to 150 tons per heat.

Encouraged by the successful performance of these seven furnaces and being limited for room, three more furnaces (Nos. 8, 9 and 10) were erected and placed in operation in 1927. They were made of 250 tons capacity. At this time No. 7 furnace was also remodeled and rebuilt for 250 tons.

Again, late in the year 1927, plans were made and construction started on No. 11 furnace of 300 tons capacity. The first heat was cast on Feb. 4, 1928. The last and largest unit of the present plant is No. 12 furnace of 350 tons capacity.

These furnaces (Nos. 11 and 12) are the largest stationary furnaces yet built and the experience obtained at Weirton from their operation shows increasing economic efficiency and quality progress.

The hearth dimensions of the 12 furnaces are approximately as follows:

Furnaces	Tapping, gross tons	Length, feet	Width, feet	Hearth area, sq. ft.
1 to 6	150	40	16	615
7 to 10	250	45	17	720
11	300	49	19	860
12	350	55	19	992

The 12 furnaces are equipped with four charging machines and two overhead cranes for hot metal and material handling on the charging floor.

On the pit side there are four ladle cranes and four pouring platforms. Two heats can be poured at each of three of the platforms and one heat at the fourth platform. There is ample ladle equipment and, included in this, are two ladles designed for the use of two pouring nozzles. This expedient obviously reduced the teeming period and nozzle erosion. The larger furnaces are equipped on the tapping side with "Y"-shaped spouts and two ladles are used for heats of 250 tons or over, as in the case of No. 7 to No. 12 furnaces.

It is plain from this rather general resume that conditions at Weirton have given an unusual opportunity to compare the relative merits of increasingly larger units of open-hearth furnaces. It is probably true that this expansion in so short a period has not been equaled in open-hearth history. While a discussion of the results at length and in detail is not to be expected in this paper, we attempt a few observations on the results the practice at Weirton has given.

Our experience indicates a tendency to increase yield in the product of the larger furnaces. Besides being an item of economy this indirectly supports the subject of quality, for our experience also demonstrates that oxidation in the deeper bath is not quite so extensive as in the case of the shallower.

The limestone used per ton of product is one of the primary considera-

Will Build Larger Open Hearths in Future

THE real development of open-hearth steel production has taken place approximately within the last 25 years. Only 60 years have elapsed since the first open-hearth furnace was built in England. For the first 20 years of this period acid bottoms only were used; the change from acid to basic practice in the United States took place largely in the decade of 1890-1900. At the beginning of this century, 50-ton furnaces were considered large and much doubt was entertained as to whether tonnages of such size could be produced with proper maintenance of quality. Today, furnaces of 300 and 350 tons capacity are in use and their performance, as outlined in the accompanying article, indicates better economy and improve steel quality. The future probably will see the building of still larger units. The information on these pages is taken from a paper, "Large Open-Hearth Furnaces," read at the spring meeting of the American Iron and Steel institute in New York, May 24. The author, Frank A. King, is superintendent, open-hearth department, Weirton Steel Co., Weirton, W. Va.

tions, the deeper bath permits and even imposes the use of less percentage of limestone. Besides the factor of decreased cost per ton of steel, limestone is of great significance from the standpoint of quality. The limestone is of course the major slag forming material and the slag is the vehicle of steel refining. Inasmuch as the depth of the bath is increased with larger furnaces the hearth area of slag surface becomes less per ton of metal capacity. Therefore for same depth of slag blanket, less limestone is needed per ton, provided there are sufficient basic elements to take up the acid components and preserve the proper basicity.

It is obviously no more difficult to keep the iron and manganese oxides normal in the slag over a deep bath and, this being true, there is at least no more tendency to oxidation in the deep bath than in the shallow one; in fact, relatively less so, especially per ton of steel. It may be granted that over-oxidation is harder to correct in the deeper bath, but it is much less likely to occur and correction is almost certain to be imperfect. A corroboration of this has been found in the fact that the desired managanese content of the steel is obtained with somewhat less addition of ferromanganese a ton as size of furnace and depth of bath increase.

Until recently the advocates of the larger furnace have refrained from public expression and whatever the restraining motives may have been is not apparent. But early in 1926 a somewhat comprehensive survey was undertaken by Stewart Cort and was very ably conducted.

In his report, read before the Institute in 1926, referring to the doubt that has existed as to the quality of steel produced in the large furnace, he stated that he had obtained expressions from representative steel makers and that all were unanimous in the belief that equally as good steel is uniformly produced by the larger furnaces. But the largest stationary furnaces which he was able to discuss at that time were of 150 tons capacity. Our own experience at Weirton with 150 to 350-ton furnaces further bears out his statements.

Comparisons Are Shown

Assuming the standard of comparison of tons per hour per 1000 square feet of hearth area, Weirton furnace No. 11 produces about 17.3 tons per hour per 1000 square feet, and No. 12 furnace 18 tons per hour per 1000 square feet of hearth area as compared with the published figures of Mr. Cort relating to stationary basic furnaces tapping 90 to 150-ton heats showing a variation from 13 to 17 tons per 1000 square feet of hearth area. However, the figure of coal consumption of 500 pounds per ton is appreciably higher than the practice at Weirton.

In this connection, it may be stated that, as would be expected, not only coal consumption but repairs, overhead, and similar items, shows economy as the furnace size increases.

Heretofore, all who have written or investigated the subject, have been obliged to make their comparisons of the larger furnaces of 250 to 300-ton capacity with results from tilting furnaces only, as until recently no stationary furnaces of that size had been built.

The advantages of tilting furnaces over stationary have been well exploited, but no real comparison of practical results could be given; for one thing, it has been more or less assumed that the larger type stationary furnaces gave more bottom trouble.

But the practice at Weirton has been to the contrary. Less bottom trouble has been found as the size or depth of bath increases. With the deeper bath the bottom cleans better and is more easily kept in proper condition, and in actual practice the larger furnaces have given less bottom trouble.

One advantage, much argued in favor of the tilting furnace, is the pouring of heats of smaller size, but there are expedients which may be used to adapt the tonnage of the large stationary furnace to any desired size. The bifurcated tapping spout is one method already used but the principle could probably be extended. All ladles at Weirton are approximately of 150 tons as the larger furnaces are tapped into two ladles. All steel is poured through 1¼-inch nozzles, and the erosion is no greater than is usual in general practice.

Among the doubts that have been entertained throughout the history of increasing furnace size is the fear of not obtaining a uniform temperature for pouring. Here again actual practice proves this to be unwarranted. Somewhat akin to this has been the feeling that the larger heats could not be handled with the same skill as smaller units. But the larger tonnage warrants the employment of higher skill and conditions offer more chance for concentration on each heat. Also the greater value at stake imposes greater responsibility.

Illinois Coal Has Promising Future

By S. W. Parr

THE eastern division of the so-called mid-continental coal area comprises all of the deposits in Illinois, south western Indiana and western Kentucky. Without question this is the greatest coal area in the world.

Estimated reserves of coal in this Illinois-Indiana-Kentucky area are over one-third of the total known reserves credited to the whole of Europe, including those of England, Scotland and Wales. They are 40 per cent greater than the total bituminous reserves credited to Pennsylvania and West Virginia together and the total reserves for the entire United States as a whole constitute over 70 per cent of the estimated coal reserves of the world.

Other features characterizing Illinois coals may be enumerated as follows:

(1) The relatively high ash, which may average from 8 to 10 per cent.

(2) The relatively high sulphur content, which may be from 2.5 to 3.5 per cent.

(3) The extraction by the room and pillar method of mining, the one most

THE future of the Illinois coal "holds decided promise for the manufacture of coke and gas." This is the opinion expressed by S. W. Parr, professor emeritus of industrial chemistry, University of Illinois, Urbana, Ill. The accompanying article is an abstract of Prof. Parr's paper presented at the meeting of the American Iron and Steel institute, New York, May 24.

extensively used, is only about 50 per cent.

(4) The high moisture content, which will average from 10 to 12 per cent; and the high oxygen content, which may follow rather closely the percentage of moisture present.

The above characteristics of Illinois coals are listed not because they are new or discouraging but because they offer a challenge to the fuel technologist and suggest the way along which we must travel if we would correctly forecast the future.

It is conceded that the ash content of Illinois coal is high; the problem of its reduction is still in the future. The first washery for bituminous coals in America was established in 1883 near Streator, Ill. It was of the piston jig type and handled 35 tons per hour. Up to 1912 there had been installed and operated 82 washeries of various types in Illinois, 35 of which were in operation that year, handling about 6 per cent of the annual coal output. At the present time, coal washeries have almost disappeared from the state.

Another objectionable feature referred to is the high sulphur content of Illinois coals. This feature is apt to be greatly exaggerated. A bulletin (23) of the Illinois geological survey gives a list of 30 mines in the state with an output in 1927 of 13 million tons. Inspection of coal from these mines, including analytical determinations for average amount of sulphur present based on from 2 to 15 face or car samples from each mine, show a sulphur content of from 0.62 per cent to 1.14 per cent.

Sulphur Is a Problem

However, large areas predominate where the sulphur content is much higher. Here is indicated a most important topic for future study. High sulphur can be partially remedied by washing processes and a great deal of study has already been directed toward removing or minimizing this objectionable element.

Reference has been made to the low extraction which accompanies the use of certain mining methods. The long wall method yields approximately 100 per cent of the coal. So also does the method of strip mining. Neither method is applicable to the majority of the desposits in Illinois. But the stripping method of mining in all this region is being developed at the present time at a rate not dreamed of 25 years ago. Stripping developments in the extreme north-eastern, north-western and south-eastern parts of the region have a potential yield of about 1000 million tons, without mentioning well established enterprises of this sort in eastern, central and southern Illinois and in Indiana.

The future of Illinois coal from the mining and extraction standpoint, and we may add from the standpoint of the needs of future generations, will be influenced in its deep, underground methods in such a manner, let us hope, as to at least improve upon the present low rate of extraction.

High moisture content of coal is of specific concern to the coking of Illinois coals, and this means also of vital concern to the gas and metallurgical interest. From the present-day standpoint of the metallurgical coke maker and blast furnace man these coals are classed as non-coking.

What Are Prospects?

Does the future hold out any modification of this characterization? Indeed, can a good coke for any purpose, domestic, water-gas, power or metallurgy be made from these high oxygen coals?

A typical lump of Illinois coal is made up of bands of glanz coal, or "anthraxylon," the clear black portions, and a dull coal, or "attritus" bands, which are a mixture of glanz streaks and attritus, consisting of mingled bark, spines, spores, exines, etc. It has been well established that the attritus contributes to the coking properties of the coal only to the extent that it carries the intermingled streaks of glanz coal and that the real coking effect comes from the glanz coal.

An enlarged section of the glanz, or anthraxylon, portion shows clearly that this part has developed from the pure unmixed woody part of the original material. It has the true cellulose structure but it has all been far removed from the original composition of cellulose.

Here also is the seat of the high oxygen factor which really is only a chemical landmark, denoting a stage of transition from the higher oxygen or lignitic coals on the one hand, and the lower oxygen or so-called coking coals on the other.

We may call this, in fact, a halfway stage in the process of geological development, and the interesting thing about it is the fact that from this stage we can bring about a reversion, chemically speaking, and reproduce substantially the properties of the younger or lignitic type, or we can proceed in the other direction and lower the oxygen content, thereby simulating to a positive degree the characteristics of the older or higher rank of bituminous coals which are designated as coking coals.

The oxygenated type of material can be artificially increased, causing a reversion in the direction of the lignite type; or it can be reduced, showing more of the characteristics of the higher rank of coals.

Advance in temperature for completing decomposition effect to the end of the coking stage has been shown as at 750 degrees Cent. or 1400 degrees Fahr. This has been found by our experiments to be a limiting feature with special advantages for certain purposes. By means of an apparatus for measuring iginition temperatures, it is shown coal from Saline county ignites at 145 degrees Cent. Pocahontas coal shows an ignition temperature of 210 degrees Cent. Obviously these ignition temperatures are not due primarily to the gases discharged, for methane, ethylene and hydrogen are not given off at these low temperatures. Measuring in the same way ignition temperatures for carbonized material made at various temperatures, we find a definite relationship between the ignition temperatures and the temperature at which carbonization has been carried out.

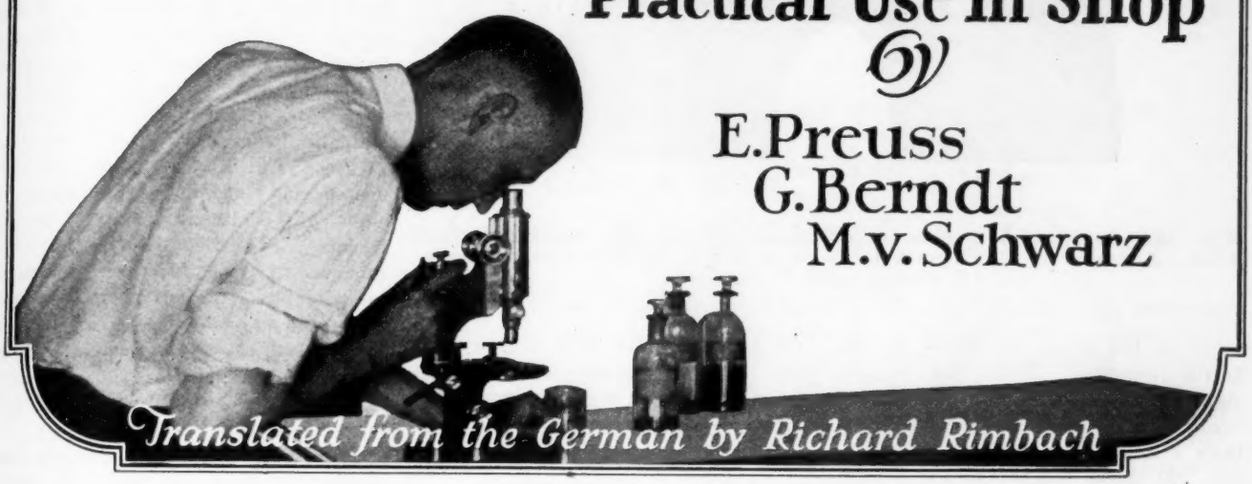
A sharp distinction in the property of ignition or reactivity is seen at 750 degrees Cent., hence the desirability, at least from the standpoint of the domestic appliance, of securing coke which has been carbonized at approximately 700 degrees or 800 degrees Cent. It does not follow from this that blast furnace or metallurgical coke should be made at the same temperature. It does, however, show that coke for specific purposes can be and doubtless should be made at specific temperatures.

The principles to be observed for the high oxygen coals are found to have specific advantages when applied to regular coking coals.

To Study European Gray Iron Manufacture

Included in the delegation of American foundrymen attending the Third International Foundrymen's congress in London, June 11-15, is a committee of three members of the board of directors of the Gray Iron institute. This committee is headed by Vice President A. E. Hageboeck, Frank Foundries Corp., Moline, Ill. Fred Erb, Erb-Joyce Foundry Co., Detroit, and Vassar Mich., and William J. Grede, Liberty Foundry Inc., Wauwatosa, Wis., and Spring City Foundry Co., Milwaukee, Wis., are the other members of the committee. They will study various methods employed in the manufacture of gray iron castings in the leading European countries.

Metallography Simplified for Practical Use In Shop



By
E. Preuss
G. Berndt
M. v. Schwarz

Chap. XII—Rolling and Cold Working of Steel (Continued)

RECRYSTALLIZATION which occurs during annealing below Ac_3 also depends on the magnitude of the deformation. At first the crystals are reduced in size, but later grow larger.[58] The final crystal size after annealing is, so to speak, the resultant of these two efforts, decreasing with an increasing degree of deformation as the recrystallization temperature changes. This, however, is true between certain limits only, as indicated in Fig. 202, which shows a bar of steel of low carbon content, bent at 750 degrees Cent., after 6 hours annealing at 730 degrees.[59] It is to be seen that the coarsest grain does not occur at all in the neutral zone which has not suffered any deformation, but only between the latter and the most highly stressed edges. The occurrence of the coarsest grains will depend upon the degree of deformation, annealing temperature and perhaps the duration of annealing, as well as upon the chemical composition of the material. For this reason, the data so far available still are contradictory.

The results of the recrystallization

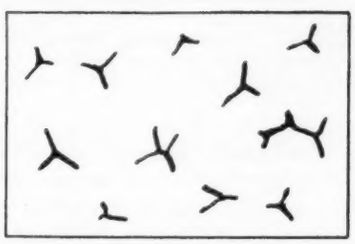


Fig. 200—Crystal boundaries or crowfoot cementite on the polished surface of a recrystallized soft carbon steel after etching with sodium picrate. X 300

diagrams which represent the dependence of the obtained grain size upon the degree of deformation and annealing temperature, can not be applied directly to the iron-carbon alloys.[60] It is remarkable that a particularly coarse crystal formation occurs on annealing to about 750 degrees Cent., if the degree of cold deformation has reached about 10 to 12 per cent. These formations show coarse ferrite crystals after recrystallization or often after annealing for ½ to 1 hour at 750 degrees Cent. This method can be employed with good results to reveal extended cold working. Examples of excessive cold working are to be found in material subjected to die or ball impression and material which has been riveted, punched or cut with a shears. Rivets which have been only partially heated also may show excessive cold work.

Fig. 201—Crack in steel following the crystal boundaries

How sharp the transition from the fine to the coarsest structure can be after recrystallization is shown in Fig. 202 with low magnification, while in Fig. 204 with higher magnification the transition is still more pronounced.[61] This grain coarseness due to recrystallization produces an extraordinary brittleness of the soft carbon steel which, to a certain extent, also is due to the disintegration of the pearlite into its constituents so that plate-like cementite crystals

[58]—C. Chappell, Ferrum, 1915, pages 6 and 7; see also *Stahl und Eisen*, Vol. 37, page 852, 1917; Vol. 39, page 1061, 1919.

[59]—P. Goerens and Fr. P. Fischer, Giessereizeit, Vol. 17, page 160, 1920. Compare also A. Sauveur, International Association of Testing Materials, 1912, meeting at New York, report 1, section 2, remarks on growth of ferrite crystals below their thermal transformation point; and M. v. Schwarz, Aus der Metallorgaphischen Praxis. Zeitschr f. Metallkunde, Vol 12, No. 1, page 19ff, 1920.

[60]—Only by the most recent investigations of H. Hanemann, Ueber Rekristallisation Werkstoffausschuss, report 84, have the conditions prevailing here been eliminated.

[61]—According to M. v. Schwarz: Ergebnisse der Untersuchung eines Kesselbleches mit ungewoehnlich vielen Rissen. Zeitschr. d. Bayer. Revisions Vereins-Vereins, Vol. 28, H. 17, pages 153-157, 1924.

Fig. 202—Longitudinal section of a low-carbon rod bent at 750 degrees Cent. Annealed at 730 degrees Cent. for 6 hours. Etched microscopically. (P. Goerens and P. Fischer)

occur on the grain boundaries of the ferrite crystals. These can be designated as "grain boundary" or "crow-foot cementite," according to their characteristic location or shape. Fig. 200 shows diagrammatically such grain boundary cementite after etching with sodium-picrate solution, which attacks the cementite only and causes it to appear dark. After ordinary microscopic etching with alcoholic nitric acid solution it will be found that these small cementite plates are located at the grain boundaries of the ferrite crystals where pearlite existed before recrystallization.[62]

A good indication that cold working has taken place is the solubility in 1 per cent sulphuric acid. Solubility is highest with cold-worked steel, and decreases with increasing annealing temperatures. For the annealed steel the solubility is a minimum as can be seen from the following table,[63] giving data on a carbon steel bar with 0.29 per cent carbon rolled down in one pass from 41.5 to 39 millimeters and annealed at the temperatures indicated for 2 hours and at 900 degrees Cent. for half an hour. The results show the loss in weight in the acid after 70 hours, the loss of the unannealed steel being taken as 100. The various solubilities are as follows:

Anneal. Temp. Degrees Cent.	Solubility
0	100.0
100	98.8
200	96.8
300	93.9
400	90.3
500	88.0
600	83.8
700	78.1
900	80.1

In the same way, the relative solubility, that is, the ratio of the solubility of the annealed steel to that of the unannealed steel increases with increased cold working.[64]

Fig. 203—Hair cracks made visible by planing the surface with a sharp tool. (C. Bach and R. Baumann.)

As mentioned previously, the cold working creates internal stresses which cause cracks,[65] and a particular sensitivity to hydroxides, especially sodium hydroxide.[66] Strong solutions of ammonium nitrate also can produce such stresses in cold-worked soft steel and cause cracks.

The so-called grinding cracks when grinding white cast iron and hardened steel can be explained by local expansion due to localized heating. Likewise, the occurrence of fine radial cracks can be observed in the brinell test, the length of the cracks indicating the range to which the overstressing extended. In soft material, the fine cracks do not occur upon grinding but they do occur with repeated cold working. An example is steel rails continually pounded by the wheels. Statistics prove that the number of rail fractures increases considerably after ten years, and can be traced to fine cracks originating after this time. By proper annealing, that is, regeneration of the cold working structure, the occurrence of cracks can be avoided.

Often it is difficult to discover fine cracks, but they can be made easily noticeable by planing with a sharp, pointed tool, as Fig. 203 shows. Another method consists in rubbing the surface with lampblack which penetrates into the cracks, and then painting with white paint. If the piece is now suspended and struck with a hammer, the cracks show up as dark lines on the white paint. Also, the piece can be covered with liquid printing ink and heated with a blow torch in order to permit the ink to penetrate into the cracks. If, after wiping off, a piece of white paper is pressed

(*Concluded on Page* 1474)

[62]—Compare also E. Piwowarsky: Der Einfluss Verschiedener Legierungselemente auf das Zusammenballen des Zementits. Werkstoffausschuss. Report No. 33.

[63]—O. Bauer, Mitteil. das Mat. Pruef. Amtes, Vol. 33, page 395, 1915.

[64]—H. Altpeter, *Stahl und Eisen*, Vol. 35, page 363, 1915.

[65]—G. Charpy and J. Durand, Compt. Rend. Vol. 169, page 599, 1919.

[66]—Compare especially the reports in "Zur Sicherheit des Dampfkesselbetriebes," published by the Vereinigung der Grosskesselbesitzer E. V. Berlin: Julius Springer, 1927.

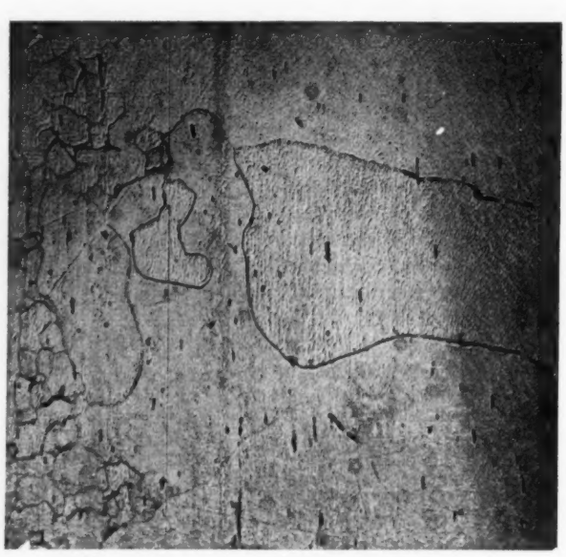


Fig. 204—Boiler plate in cross section. Large crystals are shown locally after recrystallization. (M. v. Schwarz)

Machine Tool Builders Are Solving Problems of Their Industry

Co-operation Is Helping to Clarify Questions of Standardization Cost Accounting and Trade Practice—Standard Color for Machines May Be Adopted

THAT the machine tool builders of the United States gradually are solving many of the problems of the industry was clearly indicated at twenty-seventh spring convention of the National Machine Tool Builders' association held Monday and Tuesday of last week at Grove Park Inn, Asheville, N. C.

The cost work undertaken by the association is producing results, standardization of machine parts is progressing favorably and the plans for the second exposition indicate that the Cleveland show in September will surpass expectations. In addition to these signs of definite progress, the association at Asheville launched a movement to adopt a standard color for machine tools and the early enthusiasm for this step evidenced at the convention probably means that all machines exhibited at Cleveland will appear in a color adopted by the association.

About a hundred tool builders and guests attended the convention. Perhaps the topic of greatest direct interest to the members was that of the financial position of machine tool companies and of the industry as a whole revealed by Alexander Wall of Robert Morris Associates, Inc. His remarks on the analysis of company earnings with relation to progress of the industry as contrasted with the old criterion of a satisfactory assets-to-liabilities ratio received close attention.

Approval of Standard Machine Color Is Voiced

IN THE president's address, delivered at the opening session on Monday, Henry Buker, vice president, Brown & Sharpe Mfg. Co., Providence, R. I., devoted special attention to four major problems; namely free engineering service, standardization of machine parts, design of new machines and cancellations.

Mr. Buker declared that in road construction and other large undertakings, it is the practice of the buyer to employ competent engineers to make all plans so that all bidders may be in the same position, and may bid with a definite knowledge of what they are expected to furnish. "Generally speaking," he said, "there is no reason why the same theory should not be followed in our industry. While it will be impossible to prevent some abuse of free engineering service, the fact remains that with the whole industry trying hard to find a solution of the problem, there is hope that excessive free service will be eliminated and a saner method adopted.

The president reviewed the progress made in the standardization of parts, but cautioned builders not to push standardization to the extent that it will hamper progress in design. "Standardize everything you possibly can that will make for economy and will not interfere with the efficiency of the machine" was his advice on this problem.

Turning to design, Mr. Buker warned against ill-advised changes of design and against too-frequent changes based upon fancy rather than a real need. His remarks on this subject are quoted on page 1468 of this issue of IRON TRADE REVIEW.

Referring to cancellations, the speaker described a series of letters used by his company in 1920 to caution its customers against preventable cancellations. Two opportunities were given them to withdraw orders without penalty, the result being that later when the postwar depression arrived, the number of distress cancellations was reduced to a small number. Mr. Buker declared that the cancellation problem is given little attention when order books are full, and urged builders to anticipate trouble in dull times by constantly impressing customers with their obligations.

In the report of the general manager, E. F. Du Brul announced that the association now has 138 members. He reviewed the state of the machine tool business and devoted a large part of his report to the effect of new tungsten-carbide alloys on the industry. His remarks on this subject are presented elsewhere in this issue.

Turning to association activities, Mr. Du Brul commented on the increasing attention being given to the association's index of machine tool orders and urged members to cooperate fully in supplying the data on which the index is based. He touched on the accomplishments in standardization and outlined the present situation in trade ethics. The general manager was particularly enthusiastic over the association's response to the cost work which is being done. A. E. Grover, who is conducting the work, has visited 120 out of 138 members. One result is that 50 of the companies visited now are taking steps to revamp their cost systems in line with the principles advocated.

In the report of the treasurer, August H. Tuechter, Cincinnati Bickford Tool Co., Cincinnati, presented

figures indicating the substantial financial condition of the association.

George L. Erwin Jr., sales manager, Kearney & Trecker Corp., Milwaukee, presented a brief report based on a study of the possibilities of a standard color for machine tools. He exhibited eight panels showing the colors used by 18 machine tool builders and several large machine tool users. These colors are various shades of black or gray. He stated that it ought not to be difficult to agree on one and to adopt it as standard. He proposed that this be done and that an extra charge be made for painting machines in other colors.

At this point President Buker read a resolution adopted by the board of directors, in which it was stated that the board endorses the principle of a standard color, and subject to the approval of the convention, resolves that a committee of five be appointed to submit a recommendation to the members before Aug. 1 so that adoption may be made prior to the time of the Cleveland show in September. The desired approval having been voted unanimously, the president appointed the following committee: George L. Erwin Jr., chairman; Howard W. Dunbar, Norton Co., Worcester, Mass.; W. A. Viall, Brown & Sharpe Mfg. Co., Providence, R. I.; E. J. Fullam, Fellows Gear Shaper Co., Springfield, Vt.; and L. W. S. Alter, American Tool Works Co., Cincinnati.

Describes New Measure for Financial Position

AT THE beginning of the Tuesday morning session, J. Wallace Carrel, vice president and general manager, Lodge & Shipley Machine Tool Co., Cincinnati, presented a report of the exposition committee, of which he is chairman. He outlined plans for the show to be held in the Cleveland public auditorium in September, which will be much larger and more representative than the first exposition held there in 1927.

In an address that was given close attention by every machine tool builder present, Alexander Wall, secretary, Robert Morris Associates, Lansdowne, Pa., explained how this organization of the credit men of more than 400 member banks are collecting information from the financial reports of companies in 80 different industries and are compiling and analyzing these data to provide a standard for comparison in each group.

In prefacing his remarks, Mr. Wall briefly described the evolution in the attitude of bankers in the matter of credit. For many years, he said, the rule of a two-to-one ratio of assets to liabilities was the test for the eligibility of a loan, but in recent years it has become more and more evident that this formula is inadequate. The growth of inter-industry competition makes it necessary, he declared, to measure a company's progress against that of others in its group.

He illustrated this point by showing figures which by themselves indicated that a certain company was improving its position, yet when its statement was compared with the averages for its industry it was clearly apparent that the company steadily was losing ground and was headed for bankruptcy. He compared this condition to a man in a rowboat who when timed on a lake advances at the rate of four miles an hour, but when timed on a river flowing at six miles an hour, loses two miles each hour in his attempt to advance upstream. It is important, Mr. Wall concluded, that every business be analyzed to determine whether or not it is keeping pace with the general progress of its industry.

Mr. Wall then exhibited figures compiled from the annual reports of 23 machine tool builders covering a period of 10 years. These figures, which are confidential, showed a very broad range from the lowest to highest in ratios of profits to sales, profits to worth, sales to worth, sales to fixed assets, worth to debt, worth to fixed assets, etc. Mr. Wall also showed the position of the machine tool industry as compared to the averages of 34 other industries.

At the final session F. M. Feiker, managing director, Associated Business Papers, Inc., New York, discussed the place and purpose of business papers in relation to modern industry. He declared that an industrial opinion exists which is just as much a factor in its place as is public opinion in its broader field. Industrial opinion, he said, constantly is in a state of evolution and is influenced by four organized forces: Technical schools, through their training of young men who enter industry; governmental activities in business which in recent years have become a service relationship; trade associations, by which the best practice of the individual is made common to all; and the business press comprising the industrial and technical publications which serve industry.

Mr. Feiker referred to the Associated Business Papers, Inc., stating that its 140 member publications all are engaged in shaping industrial opinion. He touched on a number of important industrial problems and explained what the business press is doing to assist in their solution.

W. H. Rastall, chief, industrial machinery division, department of commerce, Washington, discussed foreign sales of American metalworking machinery. His address, in which he urged more intensive salesmanship in certin foreign markets, will appear in next week's issue.

Builders Should Analyze Market Before Introducing New Machines

By Henry Buker

President, National Machine Tool Builders' Association

WITH the rapid development that has taken place in the last few years practically every machine tool builder has been obliged to change—sometimes in a radical way—the design of machines he has manufactured. It goes without saying that many of these changes have been necessary to keep up with the times, but in the opinion of the writer there is danger that in the desire to lead competitors, machine tool builders may go to unwarranted extremes.

Manufacturers fully realize the great cost of bringing out designs. From time to time every one of them is faced with the problem of whether to introduce a machine of new design or to hold it back and continue with

the existing model for a few years longer. There comes a time, of course, when he must change or hopelessly fall behind the times.

What are the motives for revising the design of machines? It may be that a manufacturer learns from his knowledge of trade conditions that a large number of his customers require new designs to meet their present problems. Or, perhaps—and this often is the case—he learns that a competitor has brought out a new machine which appears to have certain advantages over his own product. Not wishing to be outdone, and possibly with the thought of an approaching machine tool exposition, he calls in his chief engineer and after consulting others, decides to have some sketches made. If after studying the preliminary drawings, it is found that the new design has points of merit, he must decide whether or not he wishes to add the machine to his line.

In many cases the cost of drawings, jigs, fixtures and tool work preparatory to manufacturing the new machine will amount to from $75,000 to $100,000. This cost must be absorbed in a few years if he is to make any money on the new product. However, the manufacturer may find by examining the record of past sales of a similar machine that the demand has been somewhat limited and that based on sales of similar volume he would not be warranted in going ahead with the proposed design.

At this point the chief engineer may say that the new machine possesses such marked advantages over anything else on the market that the builder will sell many times as many machines of the new design as he did of the old. The sales manager may confirm this opinion, with the result that sometimes, without actually checking the market to determine definitely how many machines will be required, the manufacturer goes ahead, spends the money and introduces the machine only to find that if he succeeds in securing orders for every possible machine required in the next five years, he will fail to make a profit on his investment. Furthermore the new machine interferes with the production of other lines, for it is well known that every new design presents individual problems which require special attention on the part of the engineers and executives of the plant.

The manager must give keen attention to the subject of design if he wishes to keep abreast of the times and has a reasonable desire to make money. He should know before hand what it will cost to change design and should clearly understand all that is involved. To do this he must make a careful study of the market and base his judgment largely on this market analysis plus his own experience with machines of similar type.

I would not for one moment suggest that machine tool builders stand still on the question of design, but with the present radical tendency I think that builders should guard against making changes unless they are convinced, looking ahead to the future, that they are desirable from a financial standpoint. Any design that has real merit and will produce work faster or more easily than the old designs should be developed if the market is sufficiently large to reimburse the manufacturer.

Design Is Problem for Manager

FEW problems faced by the executive of a machinery manufacturing company are more difficult than that of introducing new designs. In the accompanying abstract from the address of the president, National Machine Tool Builders' association, presented last week at the Asheville, N. C., meeting, Mr. Buker presents a definite formula for this problem. He says that if a proposed machine will work faster or easier, it should be produced if an analysis of the market shows the demand is sufficient to adequately reimburse the builder. Thus the key to the problem is market analysis.

—THE EDITORS

Research Would Help in Adapting Machines to New Cutting Alloys

By E. F. DuBrul

General Manager, National Machine Tool Builders' Association

DISCOVERY and promotion of the new cutting alloys composed of tungsten-carbide and other similar materials is bound to have a great influence on machine tool design. With these alloys any machine now employed at less than its full capacity can be utilized to a greater extent than at present. Some machines cannot now be run up to their present limits of power and speed using high speed steel tools. With tungsten-carbide tools they can be run faster which will reduce the necessity of buying new tools in many cases. The new cutting alloys simply increase the capacity of the shop having machine tools of this character.

But in many other cases there must be changes in design. The new alloy tools work well only if they have adequate support and plenty of strength in the tool carriage. The ordinary tool post or tool clamp is not sufficiently strong to give the necessary rigidity required for the best use of the tungsten carbide tool. In some cases, to give the best performance it is necessary to remove the cross compound slide of lathes and build up a tool holder directly from the tool carriage, with a solid bolster block and tool clamps.

It has also been shown that the tail stock center as now common on most lathes is a source of trouble. It seems evident that some type of live center must be found to take its place, because there is no possibility

How Will New Alloys Affect Design?

SEVERAL articles on the effect of tungsten-carbide and other cutting materials have appeared in recent issues of IRON TRADE REVIEW. *The accompanying abstract from the report of the general manager of the National Machine Tool Builders' association, presented last week at the Asheville meeting, supplements the information in these articles. Mr. DuBrul summarizes the probable effects on the design of machine tools and concludes with a timely suggestion that an investigation of the problem, supported by builders and users of machine tools, will insure the metalworking industry against mistakes similar to those made at the time high speed steel was introduced.*

—THE EDITORS

of adequately lubricating the present type of center. Up to this writing no live center that has been tested has been equal to the job. The most serious objection to the live center has been chatter of the work. Chatter is fatal to the use of tungsten carbide tools, because they are decidedly brittle and chatter breaks the edge, ruining the high priced tool. The ingenuity of lathe designers apparently must now be directed to developing a good type of live center for tailstocks.

The speed of operation possible is much higher than present practice, and it brings out another weakness of many current lines of machine tools. Chatter may start in the head of the machine, particularly in the bearings, and as soon as chatter starts the tool is ruined. There is need for better bearings, both in design of the bearing as well as in its lubrication. The lubrication of many present day machine tools is entirely inadequate. Better materials must be used in the bearings; better fits are necessary; and thorough lubrication assured.

It seems practically necessary also to re-design the power transmitting members of many types of machine tools. To use the new alloys more power must be transmitted to the cutting point of the small tools. The rigidity of all power transmitting members is of prime importance. Gears must be smooth running, well balanced and of ample strength. Power application should be made close to rigid support members, and never on a shaft midway between bearing supports. Therefore, the design of power transmitting shafts should be so ample that all torque vibration is eliminated. With due attention given to these details, together with properly designed and lubricated bearings, economic employment of these tungsten carbide tools is in order. As they stand now the cutting tools are again ahead of the machine tools now offered by many machine tool builders, here and abroad, who must face the necessity of re-designing their lines.

Must Avoid Mistakes

At this time it is well for the machine tool industry to take the steps necessary to avoid many of the large expenses that were incurred at the time of the introduction of high speed steel. At that time there was no definite information available to the machine tool designer on which he could base his designs. It would seem to be the part of wisdom for machine tool builders to find some way, in co-operation with users, to determine the fundamental conditions that must be met, and to make these conditions known to all of the designing staffs of builders so that they may avoid expensive mistakes.

A few mistakes on the part of a few companies would cost more money than the full cost of an exhaustive research. I submit this for the careful consideration of the executives of the machine tool building industry. How to finance this research and how to get it done is a problem, but its solution should be undertaken with the least possible delay.

Steel Distribution Must Be Rationalized

(*Concluded from Page* 1455)

of the industry was 6.35 per cent. Not only in itself but when compared with what other industries are receiving, this return is indeed very low.

We cannot overlook the fact that the return should be sufficient to cover not merely payment for our manufacturing costs and the activities of labor and reward invested capital, but also to make up for a huge yearly drain upon raw materials. The steel industry is basic. We are depleting our sources of ore and other raw materials at an enormous rate. The profit in the business, therefore, should be sufficient to compensate for the future expenditures that will be necessary to devise ways and means of replacing these raw materials.

Take the last four decades from 1890 to date, which represent the real development of the steel business as we know it today. In the ten years just ending the average annual production of steel ingots will be eight times what it was during the first ten years of this period. During the first decade from 1890 to 1900 when the industry was just getting underway on a substantial scale, we made an annual average of 5,900,000 tons.

During the next decade, 1900 to 1910, a time of large industrial and railroad development, we produced three times as much or an annual average of 17,000,000 tons. During the third decade, 1910 to 1920 which included the war years, our production doubled again to an annual average of 33,495,000 tons.

In the decade ending this year, characterized by the greatest development of new uses for steel the industry has ever seen, we shall probably reach an annual average of 42,700,000 tons a year as against an average of only 5,900,000 tons at the turn of the century. What this means in terms of raw material at the rate of four to five tons to one ton of ingots makes an appalling figure. In the 40 years we have used 5,500,000,000 tons of raw material. It is not inconceivable that the average annual production of ingots for the next ten-year period will exceed 50,000,000 tons. At this rate the consumption of raw materials will soon reach the staggering total of 250,000,000 tons a year.

If it were only a matter of opening up new sources of raw material the situation would not be so serious. But the supply is not unlimited and the lack of available economical supply is a fundamental problem we have to face. Machinery and plant can be replaced but natural resources such as our industry is dependent upon are not the handiwork of man. I say this not to depreciate the present apparent prosperity of the steel business or its future favorable prospects. I simply want to point out this important economic fact in order that it be given due consideration in evaluating the industry's just rewards.

It is equally gratifying to know that as our stockholders become better fortified, the maintenance of better wages and living standards for our workers also is assured. The industry's prosperity better enables us to provide as high wages as are consistent with general economic conditions and with the safeguarding of the investment. According to the National Industrial Conference board we are today paying higher wages to labor than most other manufacturing industries and all of us have come to recognize the great economic importance of maintaining a high wage scale. In my opinion one of the steel industry's greatest contributions to society today is the liberal wages it pays to its workers.

Employment More Stable

Employment generally is more stable today than it has been for two years. Industry as a rule is exceptionally free from major labor disturbances. High wages and steady employment have been accompanied by the development of increasing goodwill between employers and employes and greater teamwork than we have ever experienced.

It is only by an evaluation of the true economic facts that our industry will make sound progress. The modern way to determine these facts for ourselves is through research. We have made wonderful progress in the technology of steel production. We have attained astonishing mastery of the art of scientifically producing steel. A big problem in research lies not only in the direction of knowing how

to produce better but also how much to produce and where. This involves careful analysis of sales results, sales methods, of general business conditions and requirements and the seeking and encouraging of new uses for our products. It even extends into management and labor relations.

A new activity of the institute recently effected is to give continuing consideration to the complex tariff problem from an industry standpoint. The lack of public appreciation and indeed of our own intelligent understanding of the industry's tariff requirements in the past have been probably due to the absence of such a service. It is felt, however, that with this forward step the institute will be in a better position in the future to serve the industry effectively as its tariff adviser and spokesman.

I am just as optimistic about business today as I have ever been in the past and that applies with equal force to our industry. As I look at the development of this business, the extending markets and new applications for its products and the wider contributions which steel is making to the progress of the world in general, I believe that steel has really entered upon a new era of usefulness.

The chief consumers of steel are prosperous. There is no reason to believe that the course of the automobile will be in other than a forward direction. The consumption of steel by the railroads is bound to increase. The use of steel in the construction of small buildings is already increasing at a rapid rate. Steel in household and office furnishings, in farm and factory equipment, in fact in all the ordinary activities of life is being used in innumerable ways which aggregate a large and increasing tonnage.

10 Per Cent Price Cut Needs Over 50 Per Cent Increase in Business

THE corporation that is not making a profit is a menace to a healthy continuation of business, declared Charles E. Abbott, executive director of the American Institute of Steel Construction, in an address before the Gray Iron institute meeting at Newark, N. J., May 22. Mr. Abbott insisted that we have been giving more attention to volume and not enough to production costs, and if this continues long there will threaten an unusual number of failures.

Extreme pressure to obtain business has resulted in general price cutting, reaching a point where only a relatively few most efficient plants earn a reasonable profit and even their margin has been seriously jeopardized as the result of unrestricted competition.

Many concerns gain the reputation of trading for every order and consequently salesmanship becomes utterly demoralized. I wonder if any of them realize what such tactics means in atcual dollars and cents. Unless a cut of 10 per cent in the price brings in a 50 per cent increase in business you will not break even. In other words, it is necessary to do half again as much business in order to equal the profit on the former volume at the former price, Mr. Abbott said.

A 5 per cent cut requires 18 2/3 per cent more volume; an 8 per cent cut requires 35⅛ per cent more volume; a 10 per cent cut requires 50 per cent more volume; a 12½ per cent cut requires 75 per cent more volume; and a 15 per cent cut requires 112½ per cent more volume.

Putting it still another way, if the price on a $100 sale is cut 15 per cent it is necessary to sell $112.50 more or a total of $212.50 in order to receive the same total profit that would have been made on the $100 sale at the former price.

Application of the sound principles of cost accounting constitutes one of the best guarantees of continued prosperity. Disregard of these principles is a form of business suicide. It is axiomatic throughout the commercial and industrial world that every business transaction should be based upon the fundamental formula of cost plus a legitimate profit. Orders taken at cost, or less than cost, lead to the door of the auctioneer.

Welding Plays Big Role In Shipbuilding

Great progress has been made during the past three years in the application of welding to ship construction, according to James W. Owens, director of welding for the Newport News, Va., and winner of the $10,000 Lincoln prize for the best paper on arc welding, in a talk before the Philadelphia section of the American Welding society, May 20.

Chagrin was expressed by Mr. Owens, however, over the fact that Germany is far in advance of the United States in the welding of naval ships. He went into some detail about the Ersatz Preussen, the new 9000-ton cruiser which has caused a furore in international naval circles. Although limited to a 10,000-ton ship, Germany was able to achieve remarkable results as compared with the 10,000-ton cruisers of the other powers. By welding the cruiser throughout, by using alloy steels, and by installing an engine weighing 17½ pounds per horsepower, the German builders were able to cut the total weight of the vessel by 550 tons.

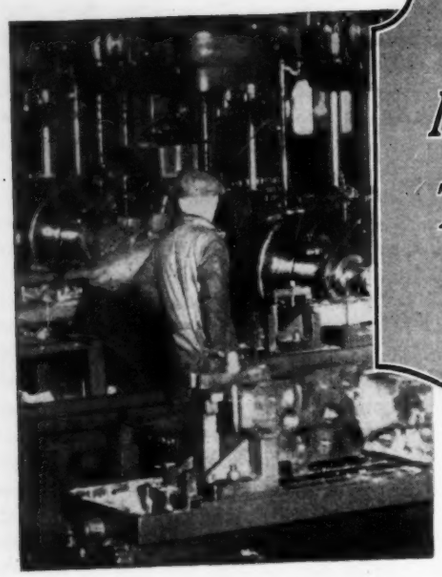
Welding of vessels throughout not only cuts their weight and gives them greater carrying capacity speed, said Mr. Owens, but it makes them safer and reduces the cost of upkeep. Leadership in developing all-welded ship construction in this country should devolve upon our navy department, said Mr. Owens. An all-welded submarine, he said, would mean a greatly improved submarine.

That portion of Mr. Owens' remarks dealing with the progress in this country showed that welding has won a permanent place in ship construction here, even though it has not yet gotten as far as the full and strength joints. He declared that he could not emphasize too strongly the necessity for studying stress behavior in welding. It is necessary to have a knowledge of the stresses of different types of joints in order to be able to design welded joints properly.

Announcement Made of Convention Dates

Indiana manufacturing plants and those in adjoining states will be represented at the sixth annual convention of the National Association of Foremen at Claypool hotel. Indianapolis, June 7 and 8.

The Friday afternoon session will be devoted to plant visitation and a scientific and industrial program has been arranged for the evening session. At the Saturday morning session, Hon. James J. Davis, Secretary of Labor, Washington, D. C., will speak on "Opportunities in Industry," and in the afternoon Alfred Kauffmann, president, Link-Belt Co., Chicago, will talk on "Some Trends in Industry." Dr. Harry Myers, Frigidaire Corp., Dayton, O., will discuss "Two Basic Principles of Good Work" on the morning program, followed by four separate foremen's conferences held at the same hour.



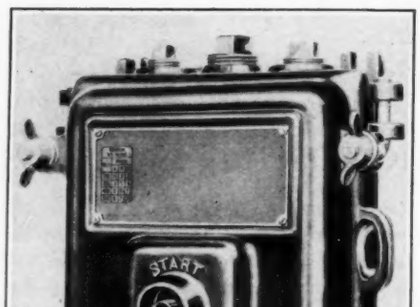
New Machine Tools and Shop Equipment

"Without tools man is nothing, with tools he is all."—Carlyle

Develops Enclosing Case for Motor Starters

No. 106

Cutler-Hammer Inc., 161 Twelfth street, Milwaukee, has developed a dust-tight enclosing case to be used on its across-the-line starters. Two types have been designed; one with cast iron case for motors up to 5 horsepower, and the other, which is constructed of heavy welded boiler plate, for larger sizes. Both are provided with soft para rubber gasket between the cover and case. Eyebolts and wing nuts at the sides, hold the cover tight. Besides being dust-tight, the small cast-iron enclosure is also weatherproof. It has the start, stop and reset buttons mounted directly in the cover. The larger sizes have the reset button only in the cover and a separate dust-tight push button station provides remote control.



No. 106—Starter enclosing case which is dust-tight

Melting Pot Has Bottom Pouring Spout

No. 107

General Electric Co., Schenectady, N. Y., has announced the development of an electric metal melting pot equipped with a bottom pouring spout. This bottom pouring feature is applicable in cases where it is impractical to ladle and where large quantities of the metal are handled. The pot is designed for melting lead, babbitt, tin, solder and similar alloys or metals, excepting spelter and zinc,

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Truck	For carting loose materials about shop	Pittsburgh Producers Supply Co.	85	April 18	1067
Gear generator	Generates large pitch helical, spur and herringbone gears	Farrel-Birmingham Co. Inc.	86	April 18	1067
Polishing machine	Grinds, polishes and buffs; four grinding wheels	Excelsior Tool & Machine Co.	87	April 18	1068
Punches and retainers	Complete line and interchangeable; high safety factor	King Works	88	April 18	1068
Strip heater	Electric; 24 inches long; for 110 or 220 volts supply	General Electric Co.	89	April 18	1068
Pouring device	Trolley runs on I-beam; ladle operated electrically	Modern Pouring Device Co.	90	April 18	1068
Lever punch	Capacity of 5/16-inch hole in 5/16-inch iron	Excelsior Tool & Machine Co.	91	April 18	1069
Milling machines	Standard universal and standard plain units	Brown & Sharpe Mfg. Co.	92	April 25	1132
Tool holder	Floating type; friction is minimized	Apex Machine Co.	93	April 25	1133
Abrasive tools	Carborundum reamers and files	Carborundum Co.	94	April 25	1133
Milling head	Combination side and end type	Giddings & Lewis Machine Tool Co.	95	April 25	1133
Switch	Direct-current cam switch for controlling auxiliaries	General Electric Co.	96	April 25	1133
Milling machine	Double-spindle type with opposed feed	Kent-Owens Machine Co.	97	May 2	1193
Cranes	Locomotive cranes with center-drive superstructures	Thew Shovel Co.	98	May 2	1193
Locomotives	Industrial type; gasoline powered and gear driven	Cincinnati Car Corp.	99	May 2	1193
Switch	Combines magnetic and circuit switches and fuses	General Electric Co.	100	May 2	1194
Lathe	Larger model of single-spindle automatic unit	Jones & Lamson Machine Co.	101	May 2	1194
Motor	Fan-cooled and totally-enclosed; uses direct current	Westinghouse Electric & Mfg. Co.	102	May 2	1194
Drawing oven	750 degree range; fan in heating chamber	General Electric Co.	103	May 9	1268
Slip roll former	For forming sheets; 3-inch diameter capacity	Niagara Machine & Tool Works	104	May 9	1269
Locomotive crane	Gasoline powered; 3-speed automotive gear shift	American Hoist & Derrick Co.	105	May 9	1269
Enclosing case	Cast iron and welded types; for across-the-line starters	Cutler-Hammer Inc.	106	May 30	1472
Melting pot	Electric heating units; bottom pouring spout	General Electric Co.	107	May 30	1472
Water level indicator	Extension system facilitating location of indicator	Combustion Engineering Corp.	108	May 30	1473
Polishing machine	Motor mounted in base; texrope drive	Hisey-Wolf Machine Co.	109	May 30	1473
Contactor	For motor starters; adds to safety by smothering arc	Westinghouse Electric & Mfg. Co.	110	May 30	1473

at temperatures not exceeding 950 degrees Fahr. Automotive control consists of an automatic control panel and a temperature control instrument. Manual control is not recommended. Heating units of the device are said to be easily replaceable without interrupting production.

New Device Facilitates Indicator Placing

No. 108

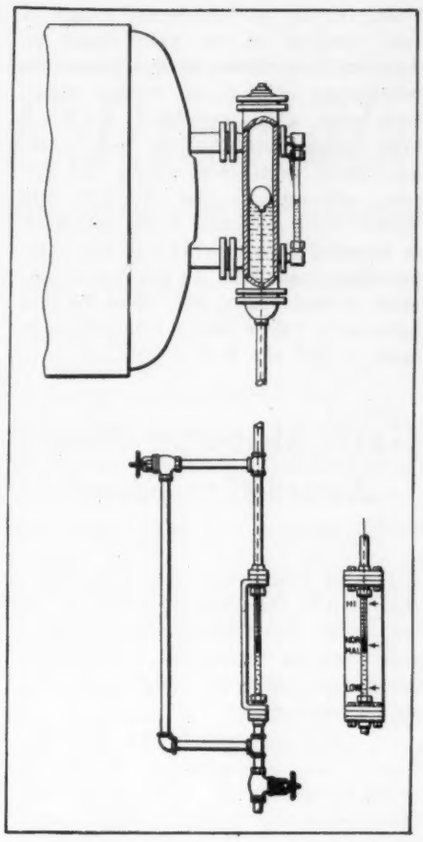
Combustion Engineering Corp., New York, has placed on the market a simple device which permits the placing of water level indicators at any desirable location or elevation. The usual water column is shown connected to the boiler drum in the accompanying sketch. Inside the water column is a noncorrosive float suitable for the maximum working pressure for which the boiler is designed. This float is direct-connected by means of a noncorrosive wire extending downward through a small pipe to an indicator in the water glass. The circuit around this indicator is filled with cold water which has no corrosive effect on the glass.

The indicator is so adjusted that when the float in the water column on the drum is in its normal position, the indicator within the lower glass is also in the center of the glass, its normal level condition. The indicator consequently fluctuates correspondingly with the up and down movement of the water column float at the drum. It is possible to locate the indicator to meet any local condition.

Rope Drive on Polishing and Buffing Machine

No. 109

Hisey-Wolfe Machine Co., Cincinnati, has announced a new texdrive buffing and polishing machine. Incorporated in its design is a bronze safety wheel nut which protects the threads. The inside washer is keyed to the shaft, and flatted on two sides to facilitate easy gripping with a wrench. Oil chambers are filled through conveniently located cups and flushing plug is located at the bottom of the housing. An extra large one-piece nickel steel spindle accurately machined for perfect balance is provided. Removable pulley hoods are made of cast iron and are dustproof. Bearing boxes are keyed to the column. The switch is mounted inside the base and starting button is in the top front of the column. The motor is mounted horizontally and



No. 108—*Extension unit for water level indicators*

planed ways permit easy adjustment. Power transmission is obtained through a texrope drive.

Shipments of Vizcayan ore have been increasing steadily, states Commercial Attache Livengood at Madrid.

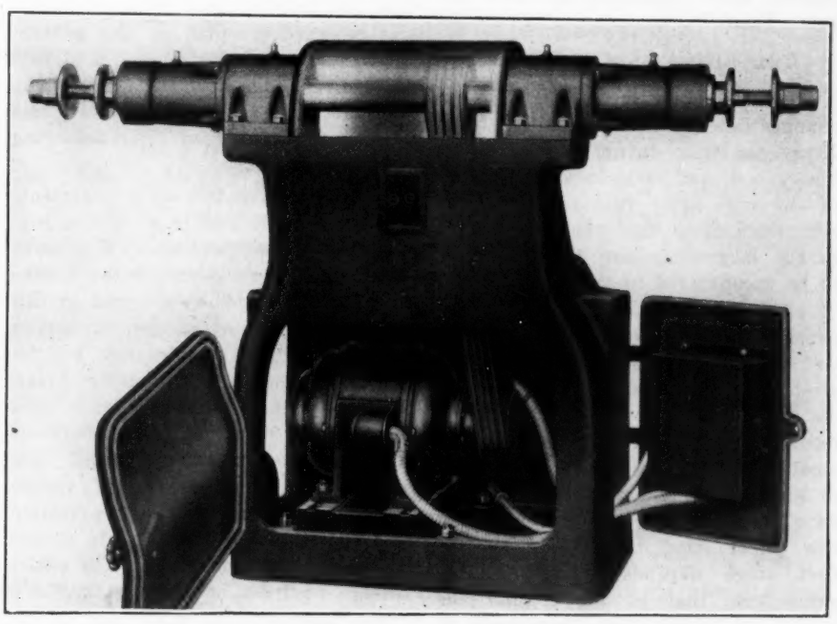
Contactor Smothers Arcs in Starter Units

No. 110

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces the development of a contactor or rupturing device to incorporate in starters. It confines, divides and smothers the arc quickly without flash and attendant scattering of flame. Not only does it provide for a greater degree of safety to the operator but it also permits a smaller enclosure and the consequent decrease in the overall size of the starter. The arc is ruptured so fast, and with so little fire that contact and arc chute life is materially measured. These contacts are claimed to rupture from 12 to 16 times their normal current carrying capacity at rated voltage under the most severe operating conditions of low power factor and sustained voltage.

Name Hoist Committee

Electric Hoist Manufacturers' association, New York, has named the following executive committee: D. S. Brisbin, Chisholm-Moore Hoist Corp., Tonawanda, N. Y.; N. A. Hall, Sprague division, Shepard-Niles Crane & Hoist Co., New York; F. A. Hatch, Shepard-Niles Crane & Hoist Co., Montour Falls, N. Y.; G. A. Mitchell, Box Crane & Hoist Corp., Philadelphia; H. W. Standardt, Northern Engineering Works, Detroit; J. G. Worker, American Engineering Co., Philadelphia; Francis E. Neagle, counsel, New York.



No. 109—*Phantom view of polishing machine showing texrope drive*

Uses X-Rays To Examine Cold-Worked Steel

(*Concluded from Page* 1461)

crystals. Figs. 22 to 24 show X-ray photographs of a low-carbon steel wire, which has been cold drawn so as to reduce the cross sectional area 80 per cent and then annealed at various temperatures, commencing at 1000 degrees Fahr. and proceeding at 200 degrees Fahr. intervals to 1400 degrees Fahr. These will not be discussed individually but the chief differences between this series and the annealed 40 per cent cold drawn series will be pointed out.

In general it is evident that this series is much finer grain than the 40 per cent series, which is to be expected. Also it is evident that in the sample annealed at 1000 degrees Fahr., Fig. 22, recrystallization has proceeded to a much greater extent than in the corresponding photograph of the 40 per cent series (see Fig. 15). This is noted from the greatly increased number of crystal images. This, of course, is to be expected since 80 per cent drawn wire has a lower recrystallization temperature. Another difference between the 80 per cent and the 40 per cent series is the greater persistency of preferred orientation in the 80 per cent series. Whereas in the 40 per cent series the preferred orientation has completely disappeared at the 1100 degrees Fahr. annealing point (see Fig. 16), in the 80 per cent series the preferred orientation is still evident at the 1100 degrees Fahr. annealing temperature (see Fig. 23) and in fact is still quite evident after annealing at 1600 degrees Fahr.

Two Stages of Cold Work

We have shown in this paper what changes take place in the pin-hole type X-ray patterns during cold drawing low-carbon steel, showing photographs of the wire after various degrees of cold work from the smallest amount to the largest amount that is likely to be encountered in the cold working of steel. Judging by our X-ray evidence, this cold work takes place in two stages. In the first stage, in stretching or cold drawing through a die, the crystals are apparently fragmented. This stage extends up to an amount of cold work equivalent to 10 to 20 per cent reduction in area. We have evidence, although not shown in this paper, that the extent of this first stage depends chiefly on the grain size, that is, the smaller the grain the sooner the appearance of the preferred orientation, which is characteristic of the second stage of cold working as we have found it. Also we have shown in this paper the persistency of the cold worked structure, even after annealing at fairly high temperatures wires which had previously been cold drawn 80 per cent, although in less severely cold worked wires evidence of the cold work is removed at comparatively low temperature annealing. In the heat treatment of cold drawn wire these factors have to be taken into consideration in order to get the best results.

Gary Memorial Medal Awarded to Farrell

(*Concluded from Page* 1454)

Following the death of Judge Gary, chairman of the Steel corporation, who had been president of the institute ever since the formation of that body, there were different views as to who should succeed him.

On other occasions in the past Mr. Farrell has demonstrated an ability to cut Gordian knots. During the war there were conflicting opinions with respect to government fixed prices on iron and steel products. Some individuals felt that there should be no government supervision of prices, while others thought the prices should be established at higher levels. At the meetings held by the steel industry, by request of the war industries board, for the purpose of recommending prices to be applied by the government to steel, no man's voice was more effective than that of Mr. Farrell in prevailing on the steel industry to recommend reasonable prices. The recommendations of the steel industry were accepted by the government, and the industry won and held the full confidence of the government, and there never was occasion for any serious thought about commandeering the steel industry.

One of the greatest accomplishments of Mr. Farrell has been in the promotion of export business. For many years he was president of the United States Steel Products Co. and in this position performed a distinct service not only for his own interest but for the entire industry in putting American steel on the foreign trade map all over the world. It is understood that the committee of award considered this work as one of special importance. Moreover, as president of the National Foreign Trade council he worked great benefits to the entire foreign business of the country.

The medal, aside from any conditions of award, is in itself a great compliment to any recipient. It is one of the largest gold medals ever struck in this country. It is 3¾ inches in diameter and more than ¼-inch in thickness.

The medal was designed under great difficulties. The institute chose Paul Manship as the sculptor to make the model. He is a member of the American Institute of Arts and Letters and many other organizations. His works have been awarded prizes on many occasions in this country and in Europe, and one is in the Metropolitan Museum of Art in New York. Mr. Manship, however, never had opportunity to study Judge Elbert H. Gary in real life. So his model had to be made from a study of a bust and a photograph.

The medal was struck by the Medallic Art Co., New York, a foremost concern in that field. It shows a profile of Judge Elbert H. Gary on one side, and the figure of Vulcan on the other side.

Effect of Cold Working on Steel Explained

(*Concluded from Page* 1466)

tightly against the piece, a print of the cracks is obtained on the paper. Dipping the pieces in oil with fine iron filings, whereby the iron particles arrange themselves along the grinding cracks which have become strongly magnetic during machining is another method to make cracks visible. Magnetizing the steel will increase the action still more. According to another method, the ground surface is etched, for a few minutes, with dilute nitric or sulphuric acid, or for 2 hours with a solution of 9 parts hydrochloric acid, 3 parts sulphuric acid, and 1 part of water. By this deep etching the cracks are opened up more.

Under special conditions, cracks can occur at slight degrees of cold working, as shown in Fig. 201. This permits recognizing a crack originating from a rivet hole of a low-carbon steel boiler plate running along the grain boundaries. The reason for this was probably due to an aging of the cold-worked material and was promoted by the high phosphorus contents of 0.078 per cent in the neighborhood of the cracks, which makes iron brittle. Painting is also liable to affect the formation of cracks due to promoting corrosion and storing of heat, even in the cold state.[67]

[67]—v. Bach; Zeitschrift d. Ver. Dtsch. Ing., Vol 57, page 1061, 1913. Compare also acid brittleness and alkali sensitivity of cold worked soft steel.

Editorials

Relate Production to Consumption!

WHAT Charles M. Schwab has to say is always interesting and usually instructive. The very fact that he is now removed from the routine, intimate cares of steel production and selling affords him a still better perspective of the entire industry. From this vantage point, at last week's meeting of the American Iron and Steel institute in New York, he appraised developments of the past six months, scanned the horizon ahead and said: "I cannot emphasize too strongly the fact that the intelligent relating of production to consumption is the most vital and fundamental element in the success of business."

"Relating production to consumption." A succinct, pertinent synonym for distribution, that problem common to all industry today. In steel, as in most other basic industries, more scientific skill has been applied to production than to distribution. Steel is being made better and more cheaply today than ever before, but that alone will not suffice, if the steel age is not to be superseded, as one speaker at the banquet forecast.

Steel must be made still better to meet the competition of new products. Present uses must be intensified, and new uses discovered and matured. The proportion of steel in automobiles must be increased. Opportunities for steel in residential construction are just opening up. Requirements of the airplane age must be anticipated. Steel in tall structures can be utilized for something more than to carry the load of other materials. Research and trade association work has only scratched the surface.

Record-breaking production of steel thus far in 1929 may happily prove a spur as well as an achievement. Only a most extraordinary slump in demand, caused by conditions beyond the control of the steel industry, can prevent the year's total exceeding by a good margin the 50,000,000-ton mark which only yesterday was a goal to shoot at. Never again will the industry be content with what a few years ago would have been considered a most satisfactory output. The industry is being geared up to a gait which must be maintained, and "relating production to consumption" is the key.

As Mr. Schwab aptly said: "There are greater opportunities and incentives than ever before to improve our methods, to improve the quality of our products and to expand our markets for them."

Look Before You Leap!

SELDOM has the wisdom of the policy of investigation before acting been emphasized more convincingly than it was in the remarks of several speakers at the spring meeting of the National Machine Tool Builders' association in Asheville, N. C., last week. These authorities showed in a practical way that it pays to rely on facts rather than on opinion.

President Buker rendered a timely service to the industry when he cautioned tool builders against introducing new designs without first investigating the requirements of the market. His advice to bring out a new model if it will perform work faster or easier and if the demand is sufficient to adequately reimburse the builder is sound.

General Manager Du Brul suggested that manufacturers and users of machine tools co-operate in investigating the requirements imposed on the design of machines by the new cutting alloys. Research, he declared, will insure the metalworking industry against mistakes similar to those made when high-speed steel was introduced.

Attention to these two suggestions will save hundreds of thousands of dollars, not only for machine tool builders but for equipment manufacturers in many branches of the metalworking industry. The cost of market analysis and a thorough investigation of the problems attending the use of the new cutting materials would not exceed the losses incurred in several major mistakes in design.

Lakes Deepen as Ore Demand Rises

NATURE as well as economic circumstances favors a heavy movement of iron ore and coal on the Great Lakes this season. Shipments of ore up to June 1 are setting a new record for this period and ore is being consumed at the rate of more than 60,000,000 tons a year, a fact which considered in the light of low stocks at lake ports and furnaces gives a definite impression as to what the movement for the sea-

son will be. Going north the fleet is carrying more than 1,000,000 tons of coal a week, close to the record.

Lake levels this season are approximately 2 feet higher than in 1925, when the controversy began over the diversion of water through the Chicago drainage canal. The average draft for the carriers that year was 18 feet 8 inches, the lowest point on record. The draft for the safe loading of boats has been increasing steadily ever since 1925, and now is 20 feet 9 inches. The average for the season probably will be 20 feet 6 inches, or 1 foot 10 inches above that of 1925. For every inch increase in the draft, a 13,000-ton ore carrier can load an additional 100 tons. Increasing the trip capacity reduces carrying cost. The fleet could easily move more than 70,000,000 tons of ore this season.

The cause of the increase in depth of lake levels, while the diversion of water at Chicago persists, is problematical. "Sun spots" is mentioned as one; "tilting of the earth" is another. "Comes in cycles," observes a third. "Heavy rains," comments a weather "shark." Whatever the reason, the fact is apparent to the casual observer that the water is higher than in many years, and the vessel operators are rejoicing over this favorable condition at a time when iron ore and coal are in such heavy demand.

Blue Annealed Plan Widely Adopted

ADOPTION of a new basing system in quoting blue annealed sheets, as announced recently by Inland Steel Co., Chicago, has become widespread. Most producers now propose to follow that course in marketing the blue annealed product and announce prices on the new basis in opening third quarter books. Under the new dual plan of quoting, No. 12 gage and heavier come under blue annealed plate designation, while No. 13 gage, instead of No. 10 gage as heretofore, becomes the base for blue annealed sheets. The base price and extras of the blue annealed sheet classification have been advanced $1 to $2 a ton, while only No. 12 gage of the blue annealed plate designation is higher, this rise being $1.

Buyers of sheets have studied the change, and occasional criticisms have been raised, but in general the plan has met with favorable response. Sheet producers answer complaints that the tonnage of No. 13 gage is insufficient to warrant using that gage as a base by the statement that production costs definitely increase with the lighter gages, and No. 13 gage is a focal point by which the higher costs are measured. It is pointed out that recently blue annealed sheet prices have been lower than tank plates for corresponding sizes. It was intended that the revision in the basing gage would remove from the realm of the blue annealed jobbing mill the competition of the continuous strip mill.

It is probable that, as heretofore, competition of the continuous strip mills will center more prominently in tonnages for heavier consumers. Nevertheless, the market on the blue annealed sheet classification itself is less likely to be disturbed. Whether the new plan tends to localize the competition of strip for the blue annealed sheet producer remains to be seen. Of importance to sheet producers now is the fact that the blue annealed market may become much better stabilized, to the advantage of both producer and consumer.

Europe Fears American Tariff

DISCUSSION of a new tariff by the United States seems to be having a profound effect on the iron and steel markets of Europe, producing nations there fearing a flood of American goods when home markets are not sufficient to absorb production. Just why the tariff levied on imports into the United States should raise a fear of increased exports is not fully apparent.

However, from present information, European steelmaking nations, led by Czecho-Slovakia, seem to be basing their fears on a repetition of past cycles of business. Full production to supply a hungry domestic market in America usually has been followed by a period of over production and consequent efforts to sell in export. Indications now are that fundamental conditions in the United States have changed in a way incomprehensible to the European mind. Mass production, high wages, unprecedented consuming capacity and a stable financial structure have coincided to minimize the trade recessions formerly met after a period of full production. Should these factors continue to act as at present the contingency expected by Europe will not be met and the effort to sell abroad will not have the urge now feared in Europe.

Meanwhile the market on the Continent is much disturbed and reprisals are being discussed and urged, even to the point of boycott of American goods. The alarmists there point to the case of American automobiles as an example. They see the predominance of these vehicles on Europe and the world markets but do not consider mass production and cheapness in price, as the cause, rather than lessened demand in the home market. The tariff on automobiles imported into the United States is not a reason for heavy exports of American-made vehicles.

IRON TRADE REVIEW

Volume 84, Number 22 — Published Every Thursday

E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Gary Memorial Medal Presented to James A. Farrell at Institute Meeting. Page 1454.

THREE important meetings feature the news of the week. This issue of IRON TRADE REVIEW might be referred to as the spring meeting edition, as nearly 20 pages are devoted to them, all of which were "covered" by staff writers. The National Machine Tool Builders' association met in Asheville, N. C.; American Steel and Heavy Hardware association, in Washington, and the American Iron and Steel institute closed the week with its meeting in New York, May 24.

The Readers' Page

CONTENTS

For May 30, 1929

SPECIAL ARTICLES

Steel Institute Leaders Point Way to Sustained Prosperity.....1453

Steel Distribution Must Be Rationalized —By Charles M. Schwab.....1455

X-Rays Used To Examine Effect of Cold Working of Steel—By F. C. Elder.....1458

Large Open Hearths Show Increased Yield and Better Steel—By Frank A. King.....1462

Metallography Simplified for Use in Shop—By E. Preuss.....1465

Machine Tool Builders Are Solving Problems.....1467

Digest of Machine Tools.....1472

Editorials.....1475

BUSINESS TREND

Railroad Decision Attracts Attention— By John W. Hill.....1478

Weekly Railroad Traffic..... 1478
Steel Sheets..... 1479
Steel Castings..... 1479
Coke Production... 1480
Bituminous Coal Production..... 1480
Steel Price Index.. 1481
Structural Steel Sales..... 1481

MARKET REPORTS

Review of Markets.....1482

Iron and Steel Prices..... .....1482, 1483, 1484, 1487, 1497, 1522

Pig Iron..... 1485
Coke..... 1486
Ferroalloys..... 1486
Nuts, Bolts, Rivets 1486
Iron and Steel Scrap 1487
Semifinished..... 1488
Bars..... 1489
Plates..... 1489
Pipe..... 1490
Sheets..... 1491
Tin Plate..... 1491
Structural Shapes. 1492
Reinforcing Bars.. 1493
Railroad Equipment..... 1494
Cold Finished Steel 1495
Wire and Nails.... 1495
Strip Steel..... 1495
Nonferrous Metals 1496
Coke By-Products. 1496
Warehouse Markets 1497
Pacific Coast Markets..... 1498
Foreign Markets... 1507
Machinery Markets 1515
Crane Inquiry and Awards..... 1515

GENERAL NEWS

Exports Gaining Heavily over 1928....1501

Industrial Men in the Day's News— Ivy L. Lee.....1503

Scrap Trade Formally Adopts Code....1509

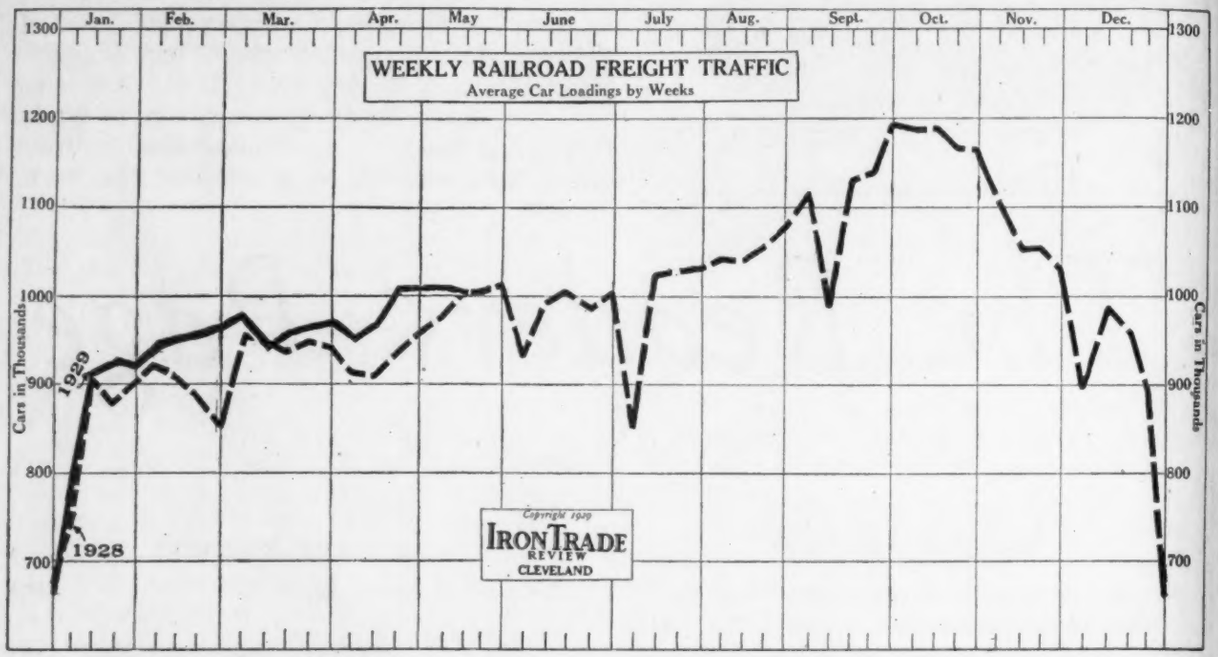
Jobbers Fail To Act on Uniform Cuting Charge.....1510

Men of the Industry 1504
Obituary..... 1506
Here and There in Industry..... 1512
Construction and Enterprise..... 1518
New Incorporations 1520
Trade Publications 1521

IRON TRADE REVIEW is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers Inc.; and National Publishers Association. Branch offices: 1347 Peoples Gas Bldg., Chicago; 410 Traction Bldg., Cincinnati; 2203-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburgh, 1703-11 Claus Spreckel Bldg., San Francisco; 1653 Pennsylvania avenue, Washington; and Boston. Foreign offices: Caxton House, Westminster S. W. 1, London; 9 Rue de Londres, Paris, France; Wilhelmstrasse 114, Berlin, S. W. 48, Germany; cable address: *PENTON*, Cleveland; *TROTRAPEN*, London. Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1929 by the Penton Publishing Co.*

The A. B. P. is a nonprofit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers and honest advertising of dependable products

The Business Trend



Railroad Decision Attracts Attention

By JOHN W. HILL, Financial Editor

THE railroads were very much in the limelight last week with the announcement of the Supreme Court's decision in the O'Fallon case. The immediate result of this development was a spectacular rise in railroad shares. The advance was short-lived, however, as account was taken of the probable immediate effect of the verdict. Upon further consideration it became apparent that no sudden lift in railroad freight rates nor in earnings would follow.

THE O'Fallon case involved an important principle affecting the railroads. It was directed at the interstate commerce commission's valuation of railroad property on a basis which approximated initial costs rather than reproduction costs. The Supreme Court held that the commission had given insufficient consideration to reproduction costs in making its appraisal.

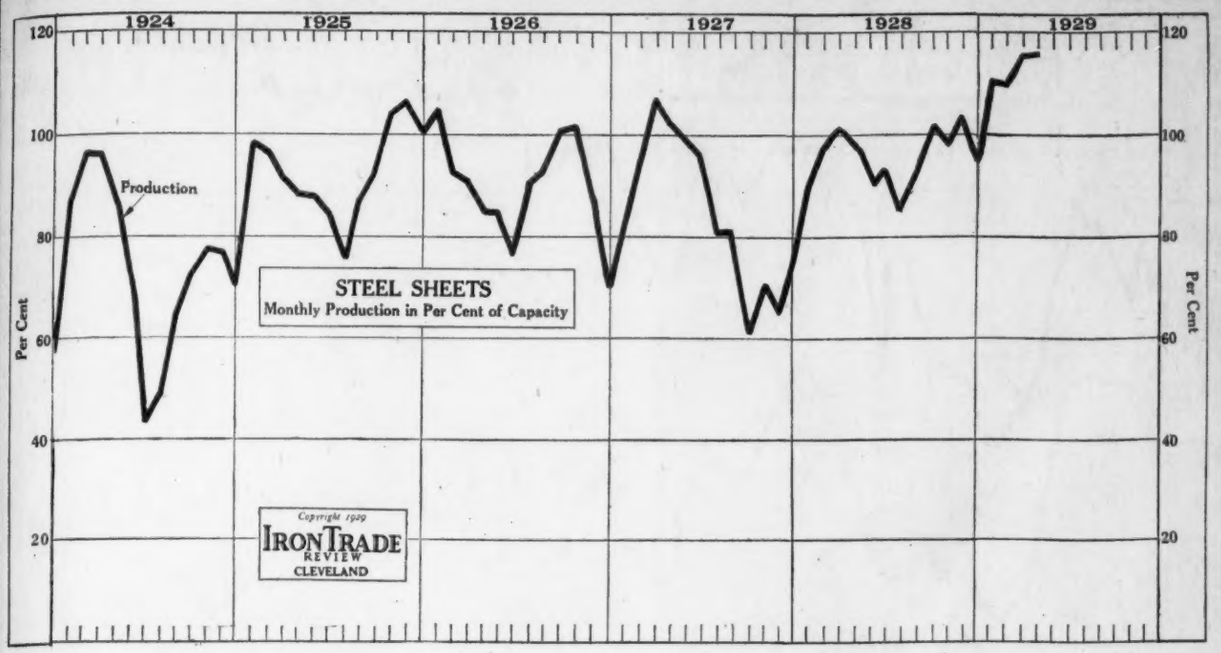
THE interstate commerce commission has been making its appraisals on the basis of prewar prices of property. Since prices and costs now are from 50 to 75 per cent higher than the prewar base, the railroads have contended that reproduction costs should determine the present valuation of railroads.

THE question is important because the Transportation act provides that rates shall be fixed on a basis to provide a fair return on property valuation. The rate level depends partly upon determination of valuation but there are other important factors also. The Supreme Court decision will undoubtedly weigh greatly in future appraisals by the commission; or at least in court appeals by individual roads from the commission's valuation if consideration is not given to present-day costs.

MEANWHILE, the roads have been faring well this year in point of traffic. Since the beginning of the year 18,228,000 cars have been loaded with revenue freight compared with 17,512,000 in the like period of 1928. The increase over last year is 4 per cent.

THE large volume of car loadings testifies to the high rate of activity for general industry. The iron and steel industry has revealed little of the usual seasonal slackening so far. The automobile industry also is continuing at a good clip, although there has been some slowing down and the feeling prevails that this will be more perceptible shortly.

The Business Trend

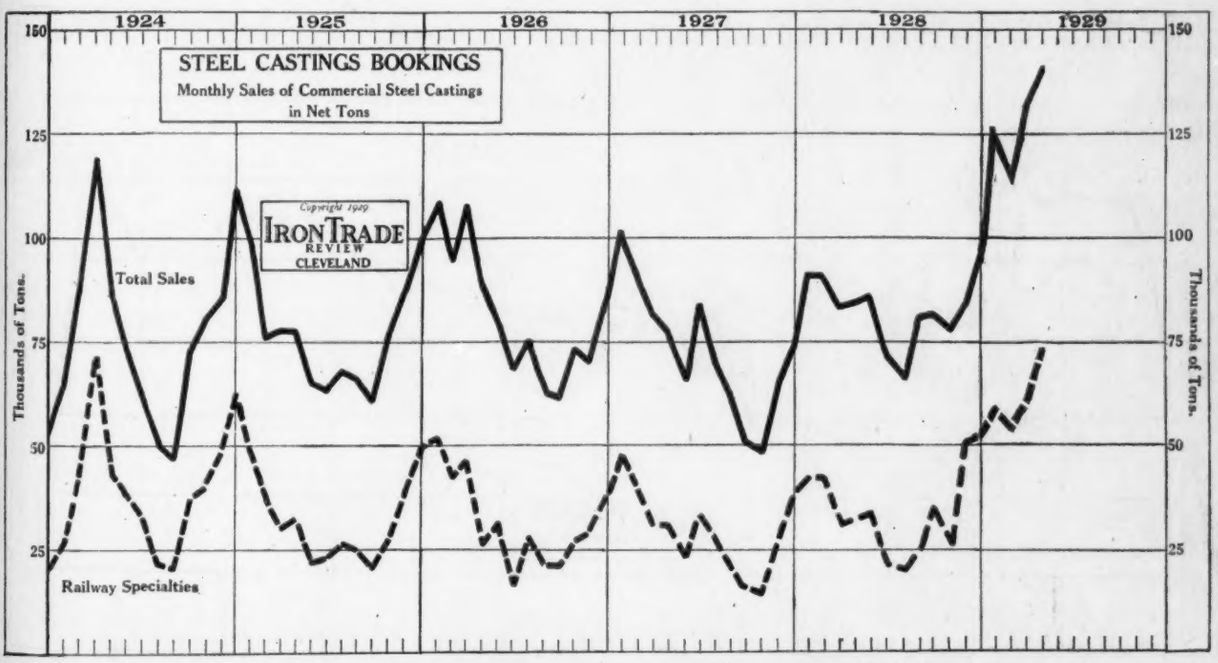


Steel Sheets

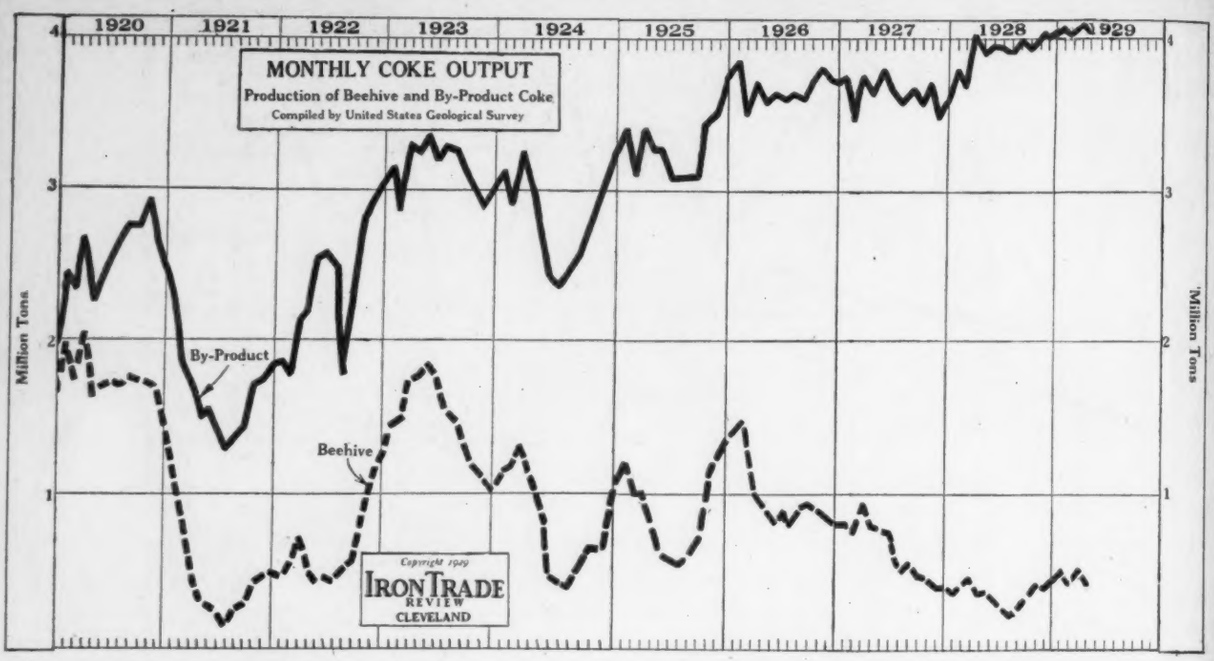
PRODUCTION of steel sheets by independent producers in April reporting to the National Association of Flat Rolled Steel Manufacturers was the highest of any month since January. Production was at rate of 115.2 per cent of capacity and totaled 375,256 net tons. Sales declined during the month to a daily average of 13,273 tons, compared with 14,977 tons in the preceding month. Shipments totaled 377,274 tons, compared with 363,648 tons one month before and 327,674 tons one year before.

Steel Castings

ORDERS for commercial steel castings in April made a new record for that month. The total was the highest for any month since March, 1923. Aggregate tonnage was 142,522 tons, compared with 130,836 tons in March and 84,086 tons in April one year ago. Orders for railway specialties were the highest for any month since March, 1924, being 74,425 tons, compared with 60,743 tons in March and 32,810 tons in April, 1928. The rate for the month was 110 per cent of capacity.



The Business Trend

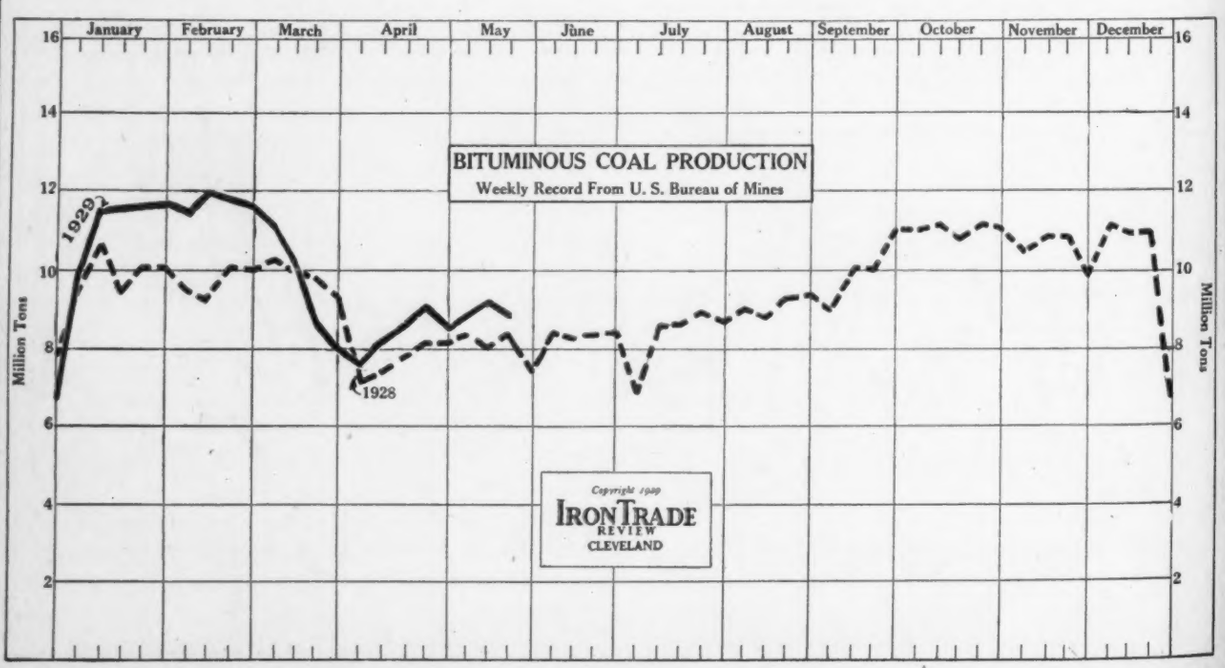


Coke Production

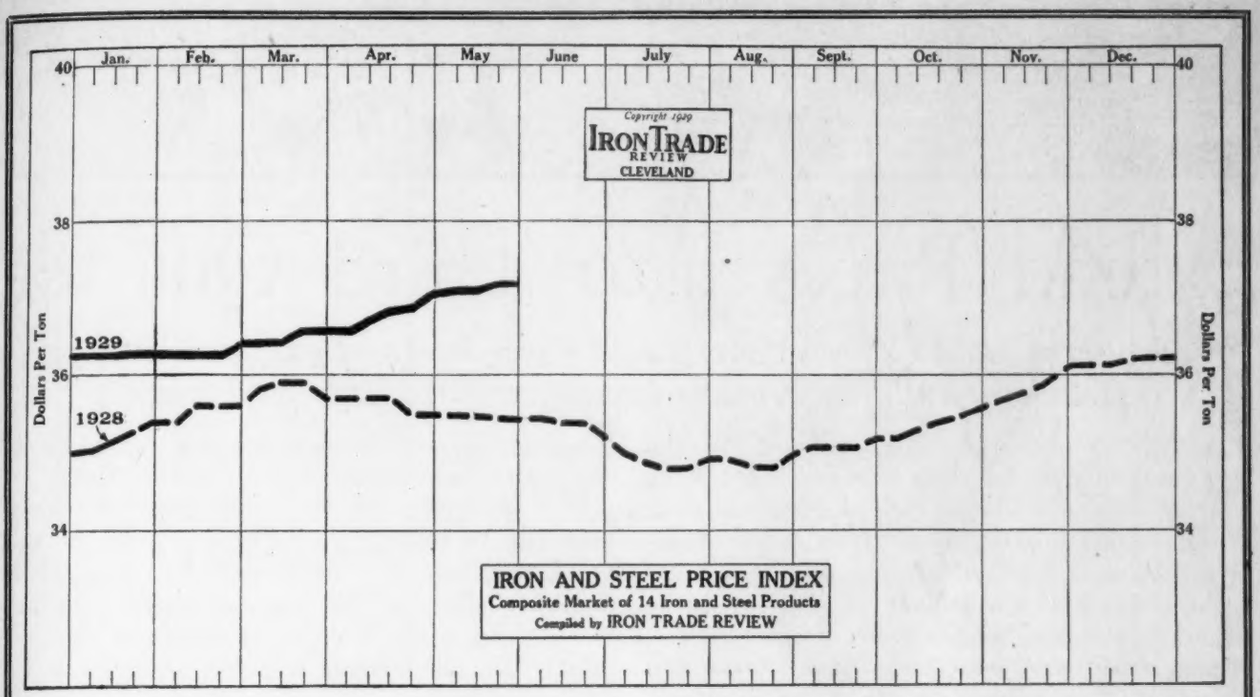
TOTAL production of by-product coke in April amounted to 4,456,944 tons. This was slightly below the output in March. The daily average rate was 148,565 tons and this was exceeded only by the record output in March. Beehive coke production declined from 533,500 tons in March to 467,700 tons in April. For the first four months of 1929 by-product coke output shows an increase of 12 per cent over 1928 and beehive coke a gain of 21 per cent. Monthly records have been broken.

Bituminous Coal Output

PRODUCTION of soft coal has been tending upward during May. Total output for the week ended May 18 was 8,932,000 tons, compared with 9,138,000 tons one week before, 8,781,000 two weeks before and 8,300,000 tons in the corresponding week of 1928. Total production of soft coal during the present year to May 18 amounts to 198,585,000 tons compared with 183,144,000 tons for the corresponding period of last year and 224,101,000 tons for the like period of 1927. Coal prices continue low.



The Business Trend

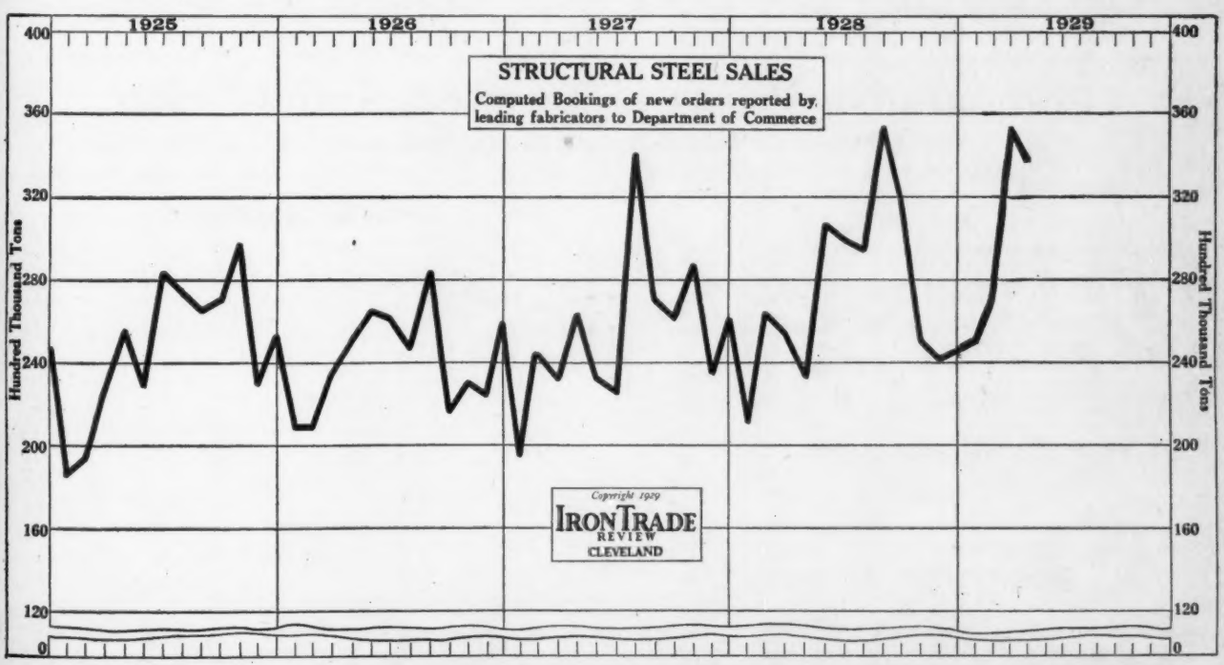


Steel Price Index

ONE of the most important developments of the iron and steel industry during the past year has been the persistent firmness and rising tendency of iron and steel products. This is all the more significant in view of the wholly unprecedented production. Apparently there has been no excess of output. IRON TRADE REVIEW'S composite market average the third week of May stood at $37.13 a ton. This was unchanged from the preceding week and it compared with $36.28 in February.

Structural Steel Awards

APRIL brought a new high record for the month in new orders for fabricated structural steel. Bookings for the month were 88 per cent of capacity, a figure that has not been approximated by that of any April since 1922, when orders were at 85 per cent. Compared with March, however, a decline is shown. New orders for the month amounted to 338,800 tons, compared with 358,000 tons in March and 234,850 tons in April, 1928. Continuance of active construction is indicated.



Extend Prices Into Third Quarter

Steelmakers Hold Current Levels and Open Books—Equipment Buying Heavier—Building Projects Promising—Iron Interest Light

CURRENT prices are being extended into the third quarter on some steel products, while on others producers are reaffirming their official second quarter levels, from which there have been occasional deviations.

Third quarter books were opened by some makers in the past week on wire products, strip, cold finished bars, wire rods, bars, plates and shapes. Within a few days the movement is expected to become general. Last week prices were extended on tin plate and sheets.

Strong Prices Mirror Strong Demand

Spiegeleisen is announced as unchanged for the last half, while users of ferromanganese who did not buy through the entire year are now covering at unchanged prices. For several weeks pig iron sales have been made for third quarter delivery at prevailing prices.

This strong situation in prices has the backing of sustained demand which has carried finished steel through its fifth successive record month. Few products have escaped, in the past week, the tendency toward a slight easing in specifications, but considering the season, consumptive requirements continue extraordinary.

With deliveries on the more important steel lines still four to six weeks deferred, on the average, it is generally accepted that a record first half production is assured. Especially is this true in pig iron. Unless the situation changes rapidly, the summer lull this year promises to be unusually gentle.

Warm weather comes as a factor to retard production, and repairs are imperative, but in most districts steelmaking operations are little changed. Chicago mills hold to 98 per cent and Pittsburgh to 95. All but two out of 51 independent open hearths at Youngstown, O., are on. Steel corporation subsidiaries are operating at capacity, and with independent producers at 93 per cent the entire industry is averaging 95 per cent.

Car Orders Near April Total

Railroad equipment buying resumed its market leadership the past week when nearly 2600 freight, passenger and miscellaneous cars and 16

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	May 29, 1929	April 1929	Feb. 1929	May 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.26	19.86	19.26
Basic, valley	18.50	18.00	17.50	16.20
Basic, eastern, del. eastern Pa.	20.65	20.25	20.50	19.10
No. 2 foundry, del. Pittsburgh	19.76	19.86	19.26	18.86
No. 2 foundry, Chicago	20.00	20.00	20.00	18.20
*Southern No. 2, Birmingham	15.50	15.50	16.50	16.00
**No. 2X, Virginia furnace	20.75	20.75	21.25	20.50
**No. 2X, eastern del. Phila.	22.76	22.26	22.01	21.26
Malleable, valley	19.00	18.50	18.00	17.25
Malleable, Chicago	20.00	20.00	20.00	18.20
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	19.13	19.26	18.76	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	2.75	2.75	2.90	2.55
Connellsville, foundry, ovens	3.75	3.75	3.75	3.55
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	35.00	34.25	33.10
Sheet bars, open-hearth, Pittsburgh	36.00	35.25	34.25	33.50
Billets, open-hearth, Pittsburgh	36.00	34.50	33.25	32.50
Wire rods, Pittsburgh	42.00	42.00	42.00	44.00

	May 29, 1929	April 1929	Feb. 1929	May 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.90	1.85
Steel bars, Chicago	2.05	2.05	2.00	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.05	2.05	2.05	2.00
Shapes, Pittsburgh	1.95	1.95	1.90	1.85
Shapes, Philadelphia	2.00	2.06	2.01	2.08
Shapes, Chicago	2.05	2.05	2.00	2.00
Tank plates, Pittsburgh	1.95	1.95	1.90	1.85
Tank plates, Philadelphia	2.15	2.15	2.10	2.05
Tank plates, Chicago	2.05	2.05	2.00	2.00
Sheets, black, No. 24, Pittsburgh	2.95	2.90	2.85	2.75
Sheets, blue anl., No. 10, Pittsburgh	2.20	2.15	2.10	2.00
Sheets, gal., No. 24, Pittsburgh	3.70	3.65	3.60	3.65
Sheets, black, No. 24, Chicago	3.10	3.10	3.00	2.85
Sheets, blue anl., No. 10, Chicago	2.35	2.35	2.25	2.20
Sheets, galvanized, No. 24, Chicago	3.85	3.85	3.75	3.80
*Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
*Wire nails, Pittsburgh	2.65	2.65	2.65	2.60
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25
*To large jobbers.				
SCRAP				
Heavy melting steel, Pittsburgh	17.75	18.50	18.60	15.00
Heavy melting steel, eastern Pa.	16.25	17.00	16.30	13.75
Heavy melting steel, Chicago	15.25	17.00	16.25	12.95
No. 1 wrought, eastern Pa.	16.25	16.25	16.25	15.25
No. 1 wrought, Chicago	16.25	16.65	15.75	13.05
Rails for rolling, Chicago	17.50	17.50	17.50	14.35

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.95c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.95c
Philadelphia, base	2.00c to 2.11c
New York, del.	2.195c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Lackawanna, N. Y., base	2.05c to 2.15c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.95c
Cleveland, del., outside mills	1.95c to 2.00c
Philadelphia, del.	2.27c to 2.37c
New York, delivered	2.29c to 2.39c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.05c to 2.15c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.00c
Chicago, billet	2.40c to 2.90c
Chicago, rail steel	2.00c to 2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.85c to 2.95c
Philadelphia, delivered	3.17c to 3.27c
Gary, Indiana Harbor	3.05c
Chicago, delivered	3.10c
Birmingham, base	3.10c
St. Louis, del.	3.27c

TIN MILL BLACK, NO. 28

Pittsburgh, base	3.00c
Gary, base	3.10c

GALVANIZED, NO. 24

Pittsburgh, base	3.60c to 3.70c
Philadelphia, delivered	3.92c to 4.02c
Gary, Indiana Harbor	3.80c
Chicago, delivered	3.85c
Birmingham, base	3.85c
St. Louis, del.	4.02c

BLUE ANNEALED

Sheets, No. 13

Pittsburgh, base	2.35c
Chicago district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.67c

Plates, No. 9 and 10

Pittsburgh, base	2.20c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.42c to 2.52c
St. Louis, delivered	2.52c

AUTOMOBILE, NO. 20

Pittsburgh, base	4.10c
Detroit, delivered	4.39c

FURNITURE

Pittsburgh	4.20c

(*Turn to the following page*)

locomotives were purchased. Thus far in May 6590 freight cars have been ordered, compared with 8205 in April and 6043 last April. Impetus to the week's business was given by the Baltimore & Ohio's 1000 box car bodies and 750 cars by the Nickel Plate. Secondary buying of track material at Chicago is expanding.

Structural steel requirements continue heavy. At New York 30,000 tons of material for subway and elevated roadway construction will shortly be placed. Between 25,000 and 30,000 tons of structural work is pending at Chicago, and mills there are unable to promise plain material short of ten weeks.

Demand for plates, chiefly for car, pipeline and tank work, is sufficiently extensive at Chicago to enable eastern mills still to take business there. Nearly 20,000 tons of plates is involved in oil country needs. Bar requirements at both Pittsburgh and Chicago are steady, and May specifications, while slightly under those of April, have been surprisingly broad.

Renewed Drilling Will Require Pipe

With the lifting of the ban on drilling in some southwestern fields, line pipe mills look for increased business. Farm areas continue good buyers of wire products, with May shipments of most makers measurably above those of April. Deliveries of strip are gradually becoming more prompt. As automotive production grows more spotty, requirements for sheets vary. Specifications for the higher finishes are reported curtailed by most makers, but increased needs of other users neutralize this loss, and for the industry as a whole new business about equals shipments. The new blue annealed schedule is taking hold.

Beehive Coke Output High

Excepting wire rods, on which the price has been extended, third quarter announcement has not been made on semifinished steel. Pressure from semifinished consumers has subsided inappreciably.

Reflecting increased production at many furnace ovens, beehive coke output is now the highest in nearly two years. Though iron and steel scrap consumption is seasonally large, prices generally feel the weight of excess supplies. Rejections by consumers are widespread.

Consumers of pig iron are ordering out iron at a rate indicating little tonnage will be carried over into the third quarter. Selling for that delivery continues mild in most districts except in Chicago. Moderate savings are accruing to melters in the Pittsburgh district as the new blast furnace in that district sells against expected production. Rail and water rates from Birmingham to North Atlantic ports are to be reduced to move the surplus merchant iron in the Birmingham district. Adjustments in pig iron prices at Pittsburgh, resulting from entry of a new producer, lower the IRON TRADE REVIEW composite of fourteen iron and steel products 3 cents, to $37.10, the first dip since January.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (May 29, 1929)	**$37.10**
Last week (May 22, 1929)	**37.13**
One month ago (April, 1929)	**36.81**
Three months ago (February, 1929)	**36.28**
One year ago (May, 1928)	**35.54**
Ten years ago (May, 1919)	**48.29**
Fifteen years ago (May, 1914)	**22.99**

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	2.00c
Hot strip 6¼ to 24-in., Pitts.	1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, basis, or 2.10c blue annealed basis.	1.90c plate
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6¼ to 24 in.	2.00c to 2.10c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	3.10c to 3.20c

ALLOY STEEL

Hot Rolled

F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds squares)	0.50	3.15

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.25c to 2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base (Per Pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.75	$2.65
Galvanized nails	4.75	4.65
Polished staples	3.20	3.10
Galvanized staples	3.45	3.35
Cement coated nails	2.75	2.65
Manuf. wire, del. Detroit		2.735c
Wire nails, del. Detroit		$2.885

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN PILING

Cut nails, c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton

Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	38.00 to 40.00
Four-inch, New York	41.00 to 42.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN AND TERNE PLATE

Prices per 100-pound box	Pittsburgh
*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24 4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mill	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927. Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	85-off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$36.00
Pittsburgh, bessemer	36.00
Youngstown	36.00
Cleveland	34.00
Philadelphia	39.30 to 41.30
Chicago	37.00
Forging, Chicago	40.00
Forging, Pittsburgh	41.00
Forging, Philadelphia	44.30 to 46.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young.	$36.00
Cleveland	34.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosporus, 51½%	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per unit, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	11.00 to 11.50
North African low phosphorus	12.00 to 12.50
Swedish foundry or basic, 65%, nominal at	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten spot and early fut., short ton unit, duty paid	16.00 tho 17.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	34 to 36 cents
Indian	34 to 36 cents
Caucasian, (53-55 per cent)	36 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east. tide., gross ton	$20.15

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Net ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Shipments Heavy, While New Orders Diminish—New Base Plan at Pittsburgh Leads Valley Makers To Absorb Some Freight

SHIPMENTS of pig iron in May generally exceeded those of April, and in some districts specifications indicate the first half of the year will establish a new record. Few new inquiries or orders are being received, except for small filling-in lots. Heavy shipments and low stocks are counted on by sellers to sustain prices. The Pittsburgh district merchant furnace going in blast June 1 is booking various grades, except bessemer which it will not produce, at 50 cents above the valley base, plus freight rates varying from 63 cents to $1.13 from its plant to consuming points in the Pittsburgh district. Valley furnaces have absorbed some of the $1.76 freight to the Pittsburgh district recently to meet this competition. Interest in third quarter is greater.

PITTSBURGH, May 28.—Pig iron consumers are showing slightly more interest in third quarter requirements, although the market is far from brisk. The rate of shipments so far this quarter indicates there will be little carryover into July. The melt at radiator and sanitary ware plants has been affected adversely this spring, and operations at some job foundries are less active than recently. Sellers are receiving a fair number of small orders for filling in, with occasional lots around 1000 tons for third quarter. Prices are steady. Bessemer is $20.76, delivered, Pittsburgh. This grade will not be produced by the Pittsburgh district furnace scheduled to go in blast June 1. Other grades of iron being sold in this district are being booked at prices 50 cents above the valley base, plus freight rates, varying from 63 cents to $1.13 for the Pittsburgh district. On some business recently valley furnaces sacrificed freight to meet competition, but this is not affecting valley prices to other points.

Boston, May 28.—It is apparent Buffalo furnaces are making a determined effort to hold to the $18.50 base price, but inquiries for third quarter are limited. The market is quiet. Sales in the past week totaled 2000 to 2500 tons. Of this 1200 tons were disposed of by a New York state furnace, the price being $18.50, base, furnace.

New York, May 28.—Pig iron buying is dull. Shipments on second quarter contracts continue heavy. Foundries in the northern New Jersey territory are operating at about 70 per cent, the highest rate since the war, and foundries elsewhere in this territory also are busy. Foundry iron is $18 to $19, base, Buffalo, for shipment to this district, equivalent to $21.28 to $22.78, delivered to New Jersey tidewater points by rail, and $22.91 to $23.91 to points taking a $4.91 rate from Buffalo. Iron now is beginning to move down through the New York state barge canal. Rates on barge shipments from Buffalo to Beacon, Jersey City and Brooklyn range from $2 to $2.50 per ton.

Buffalo, May 28.—A Buffalo furnace sold 1000 tons of No. 2 foundry iron for eastern delivery in the third quarter. The price was $18.50, furnace, the seller reports. The price in the Buffalo district is $1 higher, while the usual differentials prevail on higher silicon foundry grades and malleable. Inquiry is small. Shipments are taking the full production of all Buffalo district furnaces.

Cleveland, May 28.—Pig iron shipments in May exceeded those of April, and with indications of a continuation of a heavy movement in June the tonnage shipped in the first half of the year may set a new record for the period. Furnace and consumers' stocks are low, and as makers have good backlogs for several months ahead they feel confident of a strong price situation. New business, however, continues to taper off, sales in the past week by furnace interests with headquarters in Cleveland amounting to 12,000 tons. Current inquiries are light, and mainly for fill-in lots. Cleveland makers' prices are unchanged, on the basis of $18.50, furnace, for outside delivery, and $19, furnace, for local consumption. Plans are being prepared for rebuilding on a larger scale the Hanna A furnace at Detroit, but actual work will not start until late this year.

Cincinnati, May 28.—Pig iron business is quiet. One dealer reports total sales of 2000 tons in the past week. Prices are unchanged.

Chicago, May 28.—Further sales of northern pig iron for third quarter are noted. Several lots of 1000 tons and more of foundry and malleable iron have been purchased, including about 1800 tons in western Michigan. Ingenuity of furnace interests is taxed to maintain a balance of grades. It is indicated that shipments during first half will set a new record. Spot and future sales are being made at $20, Chicago furnace, for the base grades.

Latest estimates are that May shipments will be 10 to 12 per cent over May, 1928, and within about 10 per cent of May, 1920. About 10,000 tons of eastern iron has been shipped in the Chicago-Milwaukee territory by vessel this season. No effect has been felt on Chicago district prices.

St. Louis, May 28.—Pig iron sales are small. The melt is well maintained, though slightly under the peak late in April and early in May. Certain leading melters believe supplies of pig iron are likely to be abundant the remainder of the year. From present indications no price change is probable, so there is no particular object in making heavy commitments for third quarter. Inquiry for third quarter delivery is smaller than two or three weeks ago.

Birmingham, Ala., May 28.—Slightly improved conditions are noted in pig iron. Production of cast iron

(*Concluded on Page* 1499)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pittsburgh	19.63 to 20.13
Basic, Buffalo furnace	18.50
Basic, del. eastern Pa.	20.65 to 21.00
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	22.76 to 24.40
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, Eastern del., Phila.	23.26
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts, dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	19.63 to 20.13
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 plain, del., Phila.	22.26
No. 2 plain, Virginia furnace	20.75
No. 2 plain, Buffalo, del. Boston	23.41 to 23.91
No. 2 plain, N. J., tidewater	21.28 to 22.78
No. 2 Alabama, Bir. base	15.00 to 15.50
No. 2 Tenn., Birmingham base	15.50
No. 2 Tenn., del. Cincinnati	19.19
No. 2 Alabama, del. Cincinnati	18.69 to 19.19
No. 2 Alabama, del. Chicago	21.51
No. 2 Alabama, del., Cleveland	21.76
No. 2 Alabama, del. St. Louis	19.92
No. 2X, east. N. J., tidewater	21.78 to 23.28
No. 2X, eastern, del. Phila.	22.76
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	23.91 to 24.41
No. 2X, Virginia furnace	20.25 to 20.75
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63c, 76c and $1.13 per ton.

CANADIAN PRICES

No. 2 foundry, del. Toronto	24.10 to 24.60
No. 2 foundry, del. Montreal	25.50 to 26.00
Malleable, del. Toronto	24.10 to 24.60
Malleable, del. Montreal	25.50 to 26.00
Basic, del. Montreal	24.50 to 25.00

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

The Market Section

Coke

Furnace Demand Relatively Higher Than Foundries'—Connellsville Production Increased

PRODUCTION of beehive coke in the Connellsville district has passed 100,000 tons a week, for the first time in nearly two years, mainly due to increased activity at pig iron producers' coke ovens. Specifications for foundry coke are less active than for furnace fuel. Furnaces are renewing contracts. Spot demand is light, and prices unchanged.

Pittsburgh, May 28.—Beehive coke market continues steady in the face of light spot demand for furnace and foundry fuel. Expiring contracts are being renewed, with occasional new orders for lots of furnace coke up to 50 cars, for delivery over several months. The price of furnace coke holds at $2.75 to $2.85, due largely to the fact producers are not disposed to increase output above requirements of contracts. Specifications for foundry coke are less active than those for furnace fuel. Sellers indicate higher prices will be asked on heating coke when inquiries begin to appear at the end of this quarter. Production in the Connellsville district has passed 100,000 tons weekly, for the first time in nearly two years, largely as the result of activity at furnace ovens. The H. C. Frick Coke Co. has added 359 more ovens, making a total of 2719 now in operation.

Production of coke in the Connellsville region for the week ended May 18 was 103,978 tons, compared with 95,793 tons the preceding week, according to the *Connellsville Courier*.

Cincinnati, May 28.—Shipments of foundry coke continue good. New business is scarce. Prices are steady.

New York, May 28.—Specifications against first half foundry coke contracts continue good. Foundries in northern New Jersey are operating at 70 per cent, the highest rate since the war. Foundries in the metropolitan district are about on the same basis. Spot coke demand is small. By-product foundry coke continues $11, delivered at most New England consuming points; $9 to $9.40 delivered at Newark, N. J., and $9 delivered to Philadelphia consumers. Beehive foundry coke continues $4.85, Latrobe, Pa., ovens, and $3.75 to $4, Connellsville, ovens, these being the prices to consumers.

Birmingham, Ala., May 28.—While demand for coke has not shown appreciable improvement recently, less than 70 of the 1390 by-product ovens in this district are idle. Prices have been on a basis of $5, Birmingham, for the foundry grade, for many months. Local consumption is expected to improve in June.

St. Louis, May 28.—While shipments of metallurgical coke hold up, new buying is less active. By-product interests report some inquiry from the West and Southwest, but less than the usual volume at this season. Prices are steady.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	2.75 to 2.85
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell, basis	6.50
Portsmouth, O., ov., Connell, basis	6.50
Buffalo, ovens	8.75
Detroit, ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Spiegeleisen Contracts Extended at Unchanged Prices

Pittsburgh, May 28.—Specifications for ferromanganese and spiegeleisen are at a high rate, with prices on spot business unchanged at $109.79, delivered, Pittsburgh, and $34, furnace, respectively. Several additional contracts for spiegeleisen have been renewed for the last half of the year at unchanged prices. On the basis of business for the first five months, the total for the half-year is expected to reach a new high mark for the period. Special ferroalloys are steady and fairly active. Fluorspar continues firm at $18.

New York, May 28.—Prices on spiegeleisen have been extended and considerable tonnage for third quarter has been placed on the books at the same level which has prevailed since last November. The market is $34, furnace, for 19 to 21 per cent grade in carloads, subject to differentials for large tonnages. Consumption of spiegeleisen continues active. Several ferromanganese consumers who bought only for first half at a time when the trade was covering for the whole of 1929 have covered for the last half, the price being unchanged at $105, duty paid, tidewater. Consumption of ferromanganese continues high. All of the special ferroalloys are unchanged, including ferrotungsten.

On May 1 Class I railroads had 203,467 surplus freight cars in good order.

Bolts, Nuts, Rivets

Specifications Continue at Active Pace —Production High

NUT AND BOLT PRICES, PAGE 1484

Pittsburgh, May 28.—Specifications for bolts, nuts and rivets continue at the active pace that has marked the month to date. Jobbers are turning over their stocks in good volume and are steady buyers. Operations average 70 per cent, with some interests on a higher basis. The market is steady at 60 to 70 off for bolts and nuts, and 3.10c, Pittsburgh, for large rivets.

Philadelphia, May 28.—Chesapeake & Ohio railroad is inquiring for bolt and nut requirements. Rivets are quiet due largely to the fact most buyers laid in stocks at 2.90c, Pittsburgh, before the market was advanced to its present basis of 3.10c, Pittsburgh.

Chicago, May 28.—Bolt, nut and rivet makers are operating close to 75 per cent, a slight gain from the rate 30 days ago. Most consuming lines are keeping up specifications well, with dips from some automotive builders. Third quarter contracting will probably start the latter part of this week. It is understood prices will be unchanged at 60 to 70 off for bolts and nuts; 3.20c, Chicago, for large structural rivets, and 70 to 70 and 10 off list for small rivets.

Cleveland, May 28.—Steady demands are being made upon the nut and bolt makers, and orders for rivets are fairly numerous. Tonnage is holding to the April level. Makers open books this week for third quarter at unchanged prices. Heavy demand is expected from agricultural implement makers for third quarter. Operations are 75 to 80 per cent. Boiler shop orders for rivets are well maintained, but structural tonnage is falling off.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.40 to 1.50
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Prices Continue to Sag—Heavy Supply Is Burden—Melt at High Rate—Users Rejecting

SLOW decline continues in prices of iron and steel, scrap, due to large supplies and resistance of buyers. On the other hand sellers are not anxious to accept offered prices. As a result sales are slack. Melters are using from reserves in some cases. Conditions are in a deadlock for the present.

Chicago, May 28.—Steady price resistance by larger consumers of iron and steel scrap is tending to depress prices in the face of large consumption of all grades except material used by gray iron foundries. Much of the resistance is attributed to the more favorable outlook over the next few months as to a steady and well sustained supply of most grades. Railroad offerings are heavy and industrial scrap is making its appearance from diversified fabricating operations. Railroad malleable, which has been a strong feature for some months, is easier in tonnage sales. Heavy melting steel is quoted by most dealers at $15.25 to $15.75, with purchases for large consumers being made at 25 to 50 cents under that range. One consumer, lacking facilities for handling large shipments, is holding up occasional shipments from dealers.

Boston, May 28.—Pennsylvania mills continue willing to take several lines of scrap at a fixed price, but brokers in this district cannot sell, because sellers are unwilling to accept prices offered for this business. Consequently there has been little change in

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	11.50 to 11.75
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	16.50 to 17.50
Buffalo, No. 2	14.75 to 15.00
Chicago	15.25 to 15.75
Cincinnati, deal.	13.00 to 13.50
Cleveland, No. 1	15.50 to 16.00
Cleveland, No. 2	15.00 to 15.50
Detroit, No. 1 deal.	13.75 to 14.00
Detroit, No. 2 deal	12.25 to 12.50
East Pa., del. mill	16.00 to 16.50
N. Y., deal., R. R.	12.00 to 13.00
N. Y., deal. yd.	8.25 to 9.25
Pittsburgh, No. 1	17.50 to 18.00
Pittsburgh, No. 2	15.50 to 16.00
St. Louis, No. 1	14.00 to 14.25
Valleys, No. 1	17.50 to 18.00

COMPRESSED SHEETS

Buffalo (dealers)	14.50 to 14.75
Chicago	13.75 to 14.25
Cleveland	15.00 to 15.50
Detroit, dealers	14.00 to 14.25
E. Pa. new mat.	15.00
Pittsburgh	17.50 to 18.00
Valleys	17.50 to 18.00

BUNDLED SHEETS

Buffalo	12.00 to 12.50
Cincinnati, deal.	10.75 to 11.25
Cleveland	13.00 to 13.50
Eastern Pa.	11.50 to 12.00
Pittsburgh	16.00 to 16.50
St. Louis	10.00 to 10.50

SHEET CLIPPINGS LOOSE

Chicago	9.00 to 9.50
Cincinnati	9.50 to 10.00
Detroit, dealers	9.00 to 9.25
St. Louis	10.00 to 10.50

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Boston	10.50 to 11.25
Buffalo	19.50 to 20.00
Chicago (3 feet)	18.00 to 18.50
Chicago, 2 ft. and under	19.00 to 19.50
Cincinnati, deal.	18.50 to 19.00
Detroit, dealers	17.00 to 17.50
Pittsburgh (3 ft.)	19.50 to 20.50
Pittsburgh, 2 ft. and under	20.00 to 21.00
St. Louis	16.50 to 17.00

STOVE PLATE

Birmingham	12.50 to 13.00
Boston consumers	11.50 to 12.00
Buffalo	13.00 to 13.50
Chicago, net	12.75 to 13.25
Cinn., deal., net	9.25 to 9.75
Detroit, net deal.	9.00 to 9.50
Eastern Pa.	12.50 to 13.00
N. Y. deal, mill	8.25 to 8.50
N. Y., ", foundry	8.50 to 9.00
Pittsburgh	11.50 to 12.00
St. Louis	12.50 to 13.00

COUPLERS, SPRINGS

Buffalo	19.50 to 20.00
Chicago	17.00 to 17.50
Eastern Pa.	20.50 to 21.50
Pittsburgh	20.25 to 20.75
St. Louis	14.75 to 15.25

ANGLE BARS—STEEL

Chicago	17.50 to 18.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.50 to 20.50
Cleve. billet and bloom crops	17.50 to 18.00
Eastern Pa.	22.00 to 23.00
Pitts. billet and bloom crops	22.00 to 23.00

FROGS, SWITCHES, GUARDS

Chicago	16.75 to 17.25
St. Louis	15.00 to 15.50

SHOVELING STEEL

Chicago	15.25 to 15.75
Cleveland	11.75 to 12.00
Detroit, dealers	9.00 to 9.50
Pittsburgh	17.25 to 18.25
St. Louis	13.00 to 13.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	11.25 to 12.00
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 17.00
Chicago, No. 1	16.25 to 16.80
Chicago, No. 2	15.25 to 15.75
Cinn., No. 2	13.00 to 13.50
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	17.75 to 18.25
St. Louis, No. 1	13.50 to 14.00
St. Louis, No. 2	13.50 to 14.00

SPECIFICATION PIPE

Boston	10.50 to 10.75
Eastern Pa.	15.50 to 16.00
New York, deal.	11.25

BUSHELING

Buffalo, No. 1	14.50 to 15.00
Chicago, No. 1	13.50 to 14.00
Cinn., No. 1 deal	11.00 to 11.25
Cinn., No. 2	6.75 to 7.00
Cleveland, No. 1	13.00 to 13.50
Cleveland, No. 2	11.00 to 11.25
Detroit, No. 1 deal.	12.50 to 13.00
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	6.50 to 6.60
Buffalo	7.75 to 8.00
Chicago, dealers	8.50 to 9.00
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.50 to 10.00
Detroit	7.00 to 7.25
Eastern Pa.	11.50
New York, deal	7.50
Pittsburgh	10.75 to 11.25
St. Louis	8.00 to 8.50
Valleys	11.50 to 12.00

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	6.00 to 6.25
Buffalo	11.00 to 11.50
Cincinnati, deal.	9.00 to 9.25
Cleveland	11.00 to 11.25
Detroit, dealers	9.25 to 9.75
Eastern Pa.	10.50 to 11.00
New York, deal.	7.00 to 7.25
Pittsburgh	11.50 to 12.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston chem.	10.00 to 10.25
Boston, dealers	6.25 to 6.50
Buffalo	11.00 to 11.50
Chicago	10.00 to 10.50
Cincinnati, deal	9.00 to 9.25
Cleveland	11.00 to 11.25
Detroit, dealers	9.25 to 9.50
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	7.00 to 7.75
Pittsburgh	11.50 to 12.50
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	12.25 to 12.75
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.50 to 13.00
New York, deal.	8.75 to 9.75
St. Louis	12.50 to 13.00

FORGE FLASHINGS

Boston, dealers	9.50 to 10.50
Buffalo	13.75 to 14.25
Chicago, dealers	10.50 to 11.00
Cleve. over 10 in.	14.00 to 14.50
Detroit	12.00 to 12.50

FORGE SCRAP

Boston, dealers	8.75 to 9.00
Chicago	18.00 to 18.50
Eastern Pa.	14.00

ARCH BARS AND TRANSOMS

Chicago, net	21.00 to 21.50
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	14.50 to 15.00
Chicago	13.00 to 13.50
Cleveland	12.50 to 13.00
Eastern Pa.	15.00
Pittsburgh	15.75 to 16.75
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	16.50 to 17.00
Buffalo	19.50 to 20.00
Chicago	19.05 to 19.60
Eastern Pa.	22.75 to 23.00
Pittsburgh	21.50 to 22.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 14.25
Chicago	17.10 to 17.65
Eastern Pa.	19.00 to 20.00
New York, deal.	14.00 to 14.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.00 to 12.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	19.50 to 20.00
Chicago, iron	14.50 to 15.00
Chi., rolled steel	18.75 to 19.25
Cincinnati	12.50 to 13.00
Eastern Pa. cast.	16.50
Eastern Pa., rolled	20.50 to 21.50
N. Y., iron, deal.	12.00 to 12.50
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	20.25 to 20.75
St. Louis, iron	14.00 to 14.50
St. Louis, steel	17.00 to 17.50

No. 1 CAST SCRAP

Birmingham, cup.	13.00 to 14.00
Buffalo	16.00 to 16.50
Boston, textile	16.00 to 16.50
Chicago, mach.	16.80 to 17.35
Chicago, railroad	16.25 to 16.80
Chicago, agri.	15.70 to 16.25
Cincinnati, mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	16.50 to 17.00
Detroit, net, deal.	13.50 to 13.75
East, Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	13.00 to 13.50
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	15.50 to 16.00
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	13.00 to 13.50
Cleve., breakable	12.50 to 12.75
Detroit, auto, net dealers	15.00 to 16.00
Detroit, break. deal.	9.50 to 10.00
Eastern, Pa.	15.50 to 16.00
New York, deal.	11.00 to 11.50
Pittsburgh	13.00 to 13.75

MALLEABLE

Boston, railroad	16.50 to 17.00
Buffalo	18.50 to 19.50
Chicago, agri.	16.00 to 16.50
Chicago, railroad	18.25 to 18.75
Cinn., R. R., deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	16.00 to 16.50
Detroit auto deal.	15.00 to 15.25
St. Louis, rail	15.25 to 15.75

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.50 to 14.50
Rails scrap, Boston	10.00 to 11.25
Buffalo	16.50 to 17.50
Chicago	17.50 to 18.00
Eastern Pa.	18.00 to 18.50
New York	13.00 to 13.50
St. Louis	15.50 to 16.00

LOCOMOTIVE TIRES

Chicago, cut	18.00 to 18.50
St. Louis, No. 1	16.00 to 16.50

LOW PHOS. PUNCHINGS

Chicago	17.50 to 18.00
Pittsburgh	19.50 to 20.50

the general situation during the past week. Prices continue to hold in a narrow range.

New York, May 28.—Scrap dealers buying prices here continue to sag. Some dealers have reduced quotations 25 to 50 cents a ton on some grades, including clean cast borings, grate bars, rails for rolling, steel shafting and No. 1 railroad steel. In some cases, however, dealers are still maintaining prices, with a result that general market changes are not as pronounced as indicated.

Philadelphia, May 28.—Consumers of scrap in the East are receiving heavy shipments from dealers against old contracts, hence little new buying is going on. Pittsburgh dealers are combing the East more thoroughly for scrap to deliver on their old arrangements with Pittsburgh district consumers and this is practically the only tendency toward firmness. Prices are unchanged except No. 1 forge, which is $14.

Pittsburgh, May 28.—Scrap prices are steady, following a number of weeks of successive declines in various grades, although mill buying only is moderate. No. 1 heavy melting generally is unchanged at $17.50 to $18, despite a narrowing in the price range. Some sales are heard at higher levels but such business represents premium material and the average price holds at $17.75. Compressed sheets continue scarce and are steady at the same level as heavy melting. Although consumption still is heavy, some mills profess to have no interest in additional tonnage. Steel specialties, low phosphorus and blast furnace grades are steady but quiet in new buying.

Buffalo, May 28.—No tonnage buying of heavy melting steel is reported although several consumers continue to negotiate. It is reported that more than 40,000 tons of steel has been contracted for here in the latter half of this month, but additional purchases will be made in June, it is thought. A Buffalo buyer this week contracted for several thousand tons of three-foot steel rails, paying $20, delivered.

Cleveland, May 28.—Scrap market activity is at a low ebb among Cleveland dealers. Mills are not placing orders for rail shipment but continue to receive large tonnages by water and restrict rail shippers. Inspection is severe both here and in the Mahoning valley and rejections are numerous. Quotations have not receded, but some levels are weak in that it would take lower quotations to tempt users.

Cincinnati, May 28.—The downward sweep of prices in iron and steel scrap has been stopped. The market is still weak with few sales and no large tonnages reported. No changes in prices have been made this week.

Detroit, May 28.—Prices of iron and steel scrap remain unchanged. Heavy melting steel is steady at $14 to $14.25, with 75 cents less for No. 2.

St. Louis, May 28.—While the trend of iron and steel scrap prices is easier, no actual changes in prices have been made except in stove plate, which was cut 50 cents per ton to $12.50 to $13. All items of cast scrap are quiet, and hard to dispose of at current levels. Mill stocks are decreasing noticeably, and the leading interests are endeavoring to replenish, but at offers which are not bringing them much tonnage.

Birmingham, Ala., May 28.—While there was a little flurry early in the month in some items of iron and steel scrap, the market is still sluggish. Prices are stationary, by some called weak. Heavy melting steel holds to $12.50 for best quality.

Toronto, May 28.—General business in the Canadian iron and steel scrap markets is spotty. While sales early in the week were in good volume, the Victoria Day holiday slowed up sales. Consumption continues large and prospective demand is good.

Canadian Scrap

Dealers' Buying Prices

MONTREAL
Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	14.00

Semifinished Steel

Supplies Slightly Easier—Wire Rod Price Reaffirmed in East

SEMIFINISHED STEEL PRICES, PAGE 1484

Pittsburgh, May 28.—Despite some easing in supplies of semifinished steel, sustained finishing operations have served to restrict the placing of substantial tonnages for the open market. Some nonintegrated steel producers have had their regular supply of semifinished steel cut down recently because some producers of sheet bars and billets have encountered difficulty with open-hearth furnaces. Semifinished consumers are taking all material due them on contracts but few open market sales are noted. Producers are not interested in booking third quarter business at this time. There are intimations that current prices of $36 for 4 x 4-inch rerolling billets, sheet bars and slabs will be continued. Wire rods are firm and active at $42.

New York, May 28.—The $42, base, Pittsburgh, price on wire rods has been reaffirmed through third quarter and already some third quarter contracts have been entered. Consumption is heavy and specifications active. The supply of rods is scarce, not only because of the good demand but also because of heavy requirements of mills for their own drawing departments. The $2 advance on billets has been adopted by more makers and the billet market now is firm at $36, base, Pittsburgh, for rerollers and $41 for forging.

Cleveland, May 28.—The leading merchant producer of semifinished steel has not opened books for third quarter. Second quarter shipments are being made on contracts booked before the recent price advance. Operations continue at 100 per cent, and specifications in hand are sufficient for about 26 days. Customers' requirements are larger than this maker can supply.

Chicago, May 28.—Some inquiry has been received for semifinished steel for third quarter. The market is almost entirely in control of sellers at this time but prices for that period have not been announced. Commercial or rerolling billets, 4 x 4-inch base, are quoted nominally at $37, Chicago. Sheet bars are $37, Chicago. Wire rods are reported steady at $43, Chicago, or $42, Pittsburgh-Cleveland.

Operating Rates

Valley Near Peak, Chicago 98, Pittsburgh Continues 95

Youngstown, O.—Steel operations continue only slightly below the peak of the year. Mills enter the hot weather period with books still crowded with orders. Demand, while seasonably slackening, still remains so insistent that any continued period of hot weather might cause further delivery difficulties. Independent steel producers will operate 49 of 51 open-hearth furnaces this week. Bessemer production and bar mill operations at these plants are 80 per cent. Carnegie Steel Co. plants continue operations at 85 to 90 per cent, and bar mills and tin plate capacity are scheduled at 90 per cent. Average operations at this time last year were about 75 per cent, compared with an average of 90 per cent this week. Output of all finished steel products except steel pipe is higher than one year ago.

Chicago—The operating rate is being maintained more smoothly at 98 per cent, or practical capacity, as much of the repair work on mills and furnaces has been completed. Judging by mill backlogs, present operations are likely to continue well through the next 60 days unless seriously affected by semifinished steel shortages or hot weather. A feature of steelworks operations is the stepping up of structural mill output. Plate, bar, structural and hot strip mills are virtually at capacity. Of the 36 steelworks furnaces in the district, 29 are blowing.

Pittsburgh—Ingot production continues at 95 per cent in the district despite the closing down of some open-hearth furnaces for repairs. Strip mills continue at capacity except in an occasional instance where trouble in securing steel restricts operations. Sheet mill production is down a few points at 95 per cent, with tin plate output at around 90 per cent, a decrease of about five points. Pipe mills continue at about 55 to 60 per cent for welded, and 75 to 90 for seamless.

Bars

Sales at Chicago for Third Quarter at $1 Over Recent Level—Deliveries Still Deferred

A CHICAGO producer of bars has booked some third quarter business at an advance of $1 per ton over prices governing in some recent sales. This also applies to plates and shapes. Heavy backlogs and inability to reduce delivery delay makes the market unusually strong. Chicago mills expect to carry over the largest tonnage ever left at the end of a quarter.

BAR PRICES, PAGE 1483

Chicago, May 28.—One producer of finished steel has opened books for third quarter. Several contracts for bars, plates and shapes have been closed by that producer at $1 a ton over the price governing recently. Apparently the third quarter policy will be to strengthen and hold to the official range of 2.05c to 2.15c for the second quarter, which is tantamount to an advance of $1 for some buyers. The heavy backlogs of finishing mills make it impossible to furnish material when desired. Mills have refrained thus far from asking delivery premiums owing to their desire to serve all regular customers. All indications are that the carry-over from second quarter will be the heaviest on record, and will extend through all of August. Producers now find backlogs lengthened well into that month. One producer reports sales and specifications ahead of the previous week. Heavy specifications from car builders still are due. The intermittent dips in automotive manufacture have made little adverse impression on the forging industry in this territory. Road machinery builders are taking steady tonnages of bar mill products. Estimates are that farm equipment sales this year will total $467,000,000. The latest figures show March shipments the highest since August, 1928, and production in March 26.3 per cent ahead of March, last year. One mill reports finished steel shipments gaining on specifications, while another producer finds shipments still ahead.

New York, May 28.—Specifications against steel bar contracts have been heavy the past week, and there is no indication of lessening in current consumption. There is considerable interest as to price for third quarter, because June 15 will be the final date in most cases for specifying against second quarter contracts. Talk of an advance of $1 to $2 continues but nothing definite yet. Should there be an advance, specifications early in June undoubtedly will be heavy. The market continues 1.95c to 2.05c, base, Pittsburgh, equivalent to 2.29c to 2.39c, delivered New York. The sold-up condition of European steel mills seems responsible for falling off in offerings of foreign bars to customers at tidewater. The price of cold finished steel has been reaffirmed for third quarter, at 2.30c, base, Pittsburgh.

Pittsburgh, May 28.—May proved a better month in specifications for hot-rolled merchant bars than generally was anticipated. The heavy tonnage specified against first quarter contracts appears to have been well absorbed during April and resumption in buying this month was unexpectedly active. Current business is holding close to shipments. Shipments still are extended three to four weeks on average sizes. Movement of material to automotive interests has been well sustained despite a dropping off to some buyers. Demand in other directions continues well diversified. Intimations as to third quarter prices do not indicate a change from the current level of 1.95c, Pittsburgh, although producers defer opening books.

Cleveland, May 28.—Merchant steel bar tonnage has held up well the entire month, aggregate orders for each of several interests being in excess of April's. Some slackening in specifications is noted for next month, but while automotive tonnage will possibly be less in June, other consuming lines promise to hold their own. The 1.95c, Pittsburgh, price is firmly adhered to by outside mills. They quote 1.95c to 2.00c, Cleveland, with Cleveland mills naming 1.95c, Cleveland. These levels will probably be carried forward into third quarter.

Philadelphia, May 28.—Bar specifications for May are expected to about equal April's in this territory, although they will be considerably less than in March. The trade here is waiting for action on third quarter price, particularly because June 15 is the last day for specifying against second quarter contracts.

Plates

Business in Middle West Multiplies—Four Outside Mills Sharing in Current Orders

SPECIFICATIONS and new orders for plates continue active. Middle western mills are increasing their backlogs, and at least four makers in outside districts now are sharing in the overflow. A Chicago mill has opened books for third quarter. Barge builders in the Pittsburgh district are operating at the highest rate in years. Current price schedules are unchanged.

PLATE PRICES, PAGE 1483

Chicago, May 28.—Further overflow plate tonnage is being absorbed by mills outside the Chicago district, as backlogs of local producers continue to increase. At least four outside producers now are sharing in western business. One Chicago district mill reports backlogs on plates and bars extending well into August, and expects the end of this quarter will see a carryover through that month. One producer announces opening of books for third quarter. Tonnage for that period already has been offered. No new oil tonnage has been placed but 1000 tons have been added to tank plate inquiry, making the total outstanding inquiry from the oil comtry 15,000 to 20,000 tons. Plate mill operations are at capacity, and deliveries are unchanged at 12 to 14 weeks. Prices remain 2.05c to 2.15c, Chicago, to miscellaneous buyers.

New York, May 28.—Plate demand continues active, especially for structural purposes. Eastern mills continue sold ahead four weeks on sheared plates, with deliveries on universals from two to three weeks. Oil companies have placed substantial tonnage. Specifications from the railroads are good. No action has developed with respect to a large number of boats under negotiation for several months. Prices are firm at 2.05c to 2.15c, base, Coatesville, or 1.95c to 2.05c, base, Pittsburgh.

Pittsburgh, May 28.—Recent awards of freight cars, pipe lines and river barges are supplementing substantial plate tonnages on books. Some plate mills have been run below capacity recently due to lack of additional steel supplies. Extended deliveries are in effect at most mills. Barge builders are operating at the highest rate in a number of years and local freight car builders have substantial order books. The current price is 1.95c, Pittsburgh.

Cleveland, May 28.—Boiler plate demand has taken an upward swing. This is compensating for the lack of other plate business, although small lots for miscellaneous purposes are fairly heavy. A few orders recently were placed for 2¼-inch plates for oil stills, each plate weighing 14 tons. Plates are 1.95c, Pittsburgh, and while books have not been opened for third quarter, it is expected this will be done shortly at unchanged prices.

Philadelphia, May 28.—Plate con-

sumption continues active, with eastern mills operating full and unable to promise sheared in less than two to four weeks, and universals before one to three weeks. Prices are firm at 2.05c to 2.15c, base, Coatesville, or 1.95c to 2.05c, Pittsburgh. Norfolk & Western has placed 5000 tons of plates, shapes and bars for 500 automobile cars.

CONTRACTS PLACED

575 tons, 24-inch welded steel pipe, Los Angeles, to Western Pipe & Steel Co.
500 tons, plates and shapes, four barges, American Barge Line Co., to Dravo Contracting Co.
250 tons, three tanks for General Petroleum Co., Seattle, to Seattle Boiler Works.
200 tons, tanks for Union Oil Co., to Seattle Boiler Works.
150 tons, boiler breechings for plant of Snoqualmie Falls Lumber Co., Snoqualmie Falls, Wash., to Seattle Boiler Works.

CONTRACTS PENDING

9000 tons, dam for Pasadena, Calif. Bond election June 18.
500 tons, penstock for Diablo Power tunnel project, Seattle, Wash. Bids May 31.
195 tons, 24-inch welded steel pipe, Los Angeles. Western Pipe & Steel Co. low.
190 to 230 tons, 24-inch riveted pipe, Walla Walla, Wash. Bids May 29.
125 tons, siphon for Vale project, Vale, Oreg. Bids June 25.

Refractories Meeting To Be Held in June

The American Refractories institute has announced that its postponed annual meeting will be conducted at the Keystone Athletic club, Pittsburgh, June 25. The program will consist only of business sessions and election of officers. No technical papers will be presented. The annual meeting was to have been held at French Lick Springs, Ind., May 21-22.

Western Electric Buys Ford Plant

Western Electric Co. Inc., has purchased the Ford Motor Co. plant at Kearny, N. J., for the reported sum of $10,000,000. The Ford company will vacate this property and assemble cars at its new plant to be built at Edgewater, N. J. Western Electric Co. now occupies 85 acres adjacent to the present site and altogether the New Jersey plant will be the largest of its units except the Hawthorne plant at Chicago.

Elected Wharton Head

George R. Hanks, formerly a vice president, has been elected president of the Taylor Wharton Iron & Steel Co., High Bridge, N. J. He succeeds Percival Christie, who resigned recently on account of poor health. Mr. Christie will continue his affiliation with the company as chairman of the board of directors, a newly-created position.

Pipe

Pending Items Large in West and East—Lettings More Numerous and Prices Steady

LONG BEACH, Calif., inquires for 2398 tons of cast pipe and a gas company in Brooklyn, N. Y., wants 1856 tons. The aggregate of lettings is increasing. Prices are nominally firm at New York, and steady elsewhere. Activity at Cleveland centers in pipe for buildings. Pittsburgh mills are encouraged over the lifting of the ban on drilling in Seminole, Okla.

PIPE PRICES, PAGE 1484

New York, May 28.—Cast Iron pipe prices remain generally unchanged with the market about $38.25 to $39.25, delivered New York, although listed prices are nominally firm. Port Washington, N. Y., opened bids on 900 tons and the Manila, P. I., government will open bids June 1 on 768 tons. The new west side elevated highway will take at least 200 tons for the four sections, the first of which has started. Donaldson Iron Works booked 200 tons of 12-inch cast pipe for department of water supply, gas and electricity, New York.

Pittsburgh, May 28.—Pipe producers are optimistic regarding the outlook in the oil country for increased demand for tubular products as the result of lifting restrictions on oil drilling. The ban in the Seminole district was removed May 15. Demand for merchant pipe, locomotive tubes and boiler tubes generally holds to about the rate of a month ago, some improvement in the first named being offset by slightly less activity in specifications for mechanical tubing from automotive interests. The line pipe market is devoid of additional new business or inquiry following the placing of several large tonnages recently. Some additional pipe is expected to be awarded, however, for the line of the Southern Natural Gas Corp. Welded operations of some mills have been stepped up slightly but the average holds to 55 to 60 per cent, with seamless production varying from 75 to 90 per cent.

Cleveland, May 28.—While jobber demand for tubular products is only fair, sales for large public buildings keep up fairly well. One jobber here reports his turnover this season is the poorest in 30 to 35 years. Between 200 and 300 tons is involved in the Midland bank building of the Cleveland Union Terminals Co. group, slated to go to the two large interests in the Valley and Pittsburgh, which have been furnishing all the pipe for the terminal. About 125 tons is up for the Cleveland club. A large tonnage for the Lakeside hospital group went to a Mahoning valley maker. An inquiry is current from a southern Ohio interest for 40 miles of 6⅝-inch and 14-inch line pipe for installation in Texas. About 16,000 tons of 16-inch line pipe for Smith Bros., Dallas, Tex., for a line from Converse to South Texas Pipe Line Co.'s gas fields in Bee and Refugio counties was awarded Youngstown Sheet & Tube Co.

Chicago, May 28.—Subdivision work in the Chicago district calls for little cast pressure pipe. Bids are being taken on some subdivision work in the Detroit area, and Muskegon, Mich., is inquiring for a tonnage. Private utility buying is fairly active in the Chicago district. One of the latter pending projects is for a high pressure gas line. Prices for carload orders remain steady on the basis of $45.20 to $46.20, delivered, for 6 to 24-inch cast pipe, or $37 to $38, base Birmingham.

A private buyer is negotiating here for 700 tons of 4 to 14-inch cast pressure pipe for a fire protection system at an Oregon lumber plant.

Birmingham, Ala., May 28.—United States Pipe & Foundry Co. has put on another pipe shop here. Shipments of cast pipe here exceed production slightly. The market on 6-inch pipe and over continues $37 to $38, base, Birmingham.

CONTRACTS PLACED

STEEL PIPE

16,000 tons, 16-inch gas line pipe, Smith Bros., Dallas, Tex., for a line from Converse, Tex., to gas fields in Bee and Refugio counties of Texas of South Texas Pipe Line Co., to Youngstown Sheet & Tube Co.

CAST PIPE

900 tons, 4 to 16-inch pipe for Columbus, O., awarded through contractor.
200 tons, 6 to 12-inch pipe for Shorewood, Wis., awarded through contractor.
200 tons, 12-inch cast pipe, for department of water supply, gas and electricity, New York, for installation in borough of Queens, to Donaldson Iron Works, through Gregory Contracting Co.
144 tons of 6-inch centrifugal pipe for East Bridgewater, Mass., to R. D. Wood & Co.

CONTRACTS PENDING

2398 tons, 6-inch class B, Long Beach, Calif. Bids May 28.
1856 tons of 4-inch gas pipe, Brooklyn Union Gas Co., Brooklyn, N. Y.
963 to 1283 tons, 20 or 24-inch class B, Walla Walla, Wash. Bids May 29.
900 tons, 8 and 12-inch class B pipe, Port Washington, N. Y. Bids open May 28.
768 tons, 4 and 6-inch pipe for Manila, P. I., government work. Bids open June 1.
480 tons, 4 to 16-inch class B, improvement district No. 2, Southgate, Calif. General contract to Lee R. Weber Co.
360 tons, 14 and 16-inch class B, Oceanside,

Calif. Bids opened.
341 tons, 6 to 12-inch class B, Oceanside, Calif. Bids opened.
285 tons, 24 to 30-inch cement lined cast pipe for water department, Newark, N. J.
273 tons, 4 to 12-inch class B, Santa Barbara, Calif. Bids opened.
193 tons, 4 to 8-inch class B, improvement Millbrea section, Redwood City, Calif. Union Paving Co. low bidder.
188 tons, 4 to 10-inch class C, improvement Mountain View drive, San Diego, Calif. Daley Corp. low bidder.
180 tons, 8-inch class B pipe, Washington, to unstated maker.

American Bridge Sells Lassig Plant

Chicago, May 28.—American Bridge Co. has sold the former Lassig Bridge & Iron Works, embracing 400,000 square feet and 1-story buildings on Diversey boulevard, to Stewart-Warner Inc., manufacturer of automotive equipment. The former Lassig works was acquired by the American Bridge Co. in 1900. The Stewart-Warner company will convert present unused buildings for its plant extensions and later may build.

Leechburg Is Replacing 12-inch Mill

Pittsburgh, May 28.—West Leechburg Steel Co. has started plant improvements costing $800,000. Contract has been let to the Birdsboro Steel Foundry & Machine Co. for replacing 12-inch hot strip mill, involving $250,000. Westinghouse Electric & Mfg. Co. is supplying motors and generators at a cost of $250,000. Improvements will increase monthly capacity 5000 to 6000 tons.

Plane Engine Value High

Aircraft engines manufactured in the United States in 1928 totaled 3496 valued at $16,809,164. Engines rebuilt and reassembled by manufacturers in 1928 numbered 700 valued at $426,879. These statistics are based on returns from manufacturers of 95 per cent of the industry's output, made to the aeronautics branch, department of commerce, Washington.

Tin Plate

Specifications Smaller—Price Reaffirmed for Second Half

TIN PLATE PRICES, PAGE 1484

Pittsburgh, May 28.—Specifications for tin plate have declined following the unusually heavy demand that existed since Jan. 1. Some makers of cans overspecified their first half contracts. Operations in the district have been curtailed slightly to 90 per cent. The market continues $5.35 per 100-pound base box, Pittsburgh, the first half price being reaffirmed for the latter six months of the year.

Jugoslavia's iron ore production is a sixth of its prewar total.

Sheets

Automobile Industry Reducing Sheet Specifications — Miscellaneous Demands Well Sustained

SPECIFICATIONS for autobody sheets have been reduced, but demand from other lines is holding up, with deliveries showing little improvement. Mill operations in the Chicago district are further restricted by lack of semifinished steel and warm weather. Additional tonnage has been placed for third quarter at reaffirmed prices on black and galvanized, and on the new basis for blue.

SHEET PRICES, PAGE 1483

Chicago, May 28.—Sheet mill operations are being restricted in this territory by shortage of semifinished material, and warmer weather is affecting operating schedules. Additional buyers have placed third quarter tonnage at the continuation of old prices on black and galvanized sheets and on the basis of the new quotations named for blue annealed sheets and plates. Sheet mill backlogs continue six to seven weeks. Most consuming lines are active. Jobbers are taking good shipments. Operations are being held down to 75 to 80 per cent for the district, although bookings warrant a much higher schedule. Chicago delivered quotations are steady at 3.10c for No. 24 black, 3.85c for No. 24 galvanized and 2.50c for No. 13 blue annealed sheets. Blue annealed plates are 2.35c, base, delivered, and 2.30c, Chicago district mills.

Pittsburgh, May 28.—Reduced commitments for automobile sheets do not find a similar situation existing in other grades. Total demand for all material still is approximating, if not exceeding, shipments and mills are failing to reduce either their backlogs or the extended deliveries that have been in effect since the first of the year. Producers have booked blue annealed tonnage at the new No. 13-gage base of 2.35c, Pittsburgh. Some orders have been booked for third quarter. The price situation continues to show gradual improvement with 2.95c, Pittsburgh, for sheet mill black and 3.70c for galvanized more firmly held on new orders. Tin mill black continues 3.00c and autobody 4.10c. Mill operations are steadier. Production for the district holds around 95 per cent.

Buffalo, May 28.—Some makers are offering black sheets for delivery in the last half of June, but there has been little shortening of delivery of full finished or galvanized. Large tonnage of full finished sheets have been sold for third quarter. District sheet production is estimated at 90 per cent.

Cleveland, May 28.—Although automotive sheet specifications are falling off, other tonnage is holding up. A large number of new orders are being received for third quarter. All mills quote the new bases for blue annealed sheets for third quarter. Here and there a 3.60c, Pittsburgh, price on galvanized still is in evidence. A block of business was lost to a maker last week who quoted 3.70c. It was placed at 3.60c. Black appears to be 2.95c minimum.

St. Louis, May 28.—Producers and distributors of sheets report unfavorable weather is adversely affecting business. Labor trouble in the building industry also is mentioned as a factor. Demand from miscellaneous users and the manufacturing trades continues good, but specifications by some of the chief users have declined slightly. Prices are unchanged.

Youngstown, O., May 27.—Deliveries, not prices, continue a major consideration in the sheet market here. Automobile manufacturers have bought large tonnages of autobody sheets for third quarter at 4.10c. One important producer cannot offer delivery before Aug. 1 on orders now being placed.

Some users of other grades are disposed to hold off on third quarter contracting. Small tonnages of galvanized sheets have been sold in the valley at lower than quoted prices during the past week but most large sellers are quoting 3.70c on all new business.

Philadelphia, May 28.—The sheet situation is easier, with deliveries generally available in three to four weeks on blue annealed, black and galvanized. Full sheets are sold further ahead in some instances to October. Galvanized sheets continue 3.60c to 3.70c, base, Pittsburgh; black 2.85c to 2.95c. Mills generally have adopted the new method of quoting blue annealed, but it is considered likely the old will not disappear until the end of the quarter.

Electrical Engineers To Meet in Pittsburgh

The Association of Iron and Steel Electrical Engineers will hold its annual meeting in Pittsburgh the week beginning June 17. Headquarters will be maintained at the William Penn hotel, where technical sessions in addition to an exposition also will be held. Leading manufacturers of electrical equipment are scheduled to have exhibits. John F. Kelly, Empire building, Pittsburgh, is in charge of arrangements for the meeting.

Freight trains had an average speed of 13 miles per hour in March.

Structural Shapes

New York-Chicago Building Activity Grows —Other Sections Languish By Comparison— Prices Rule Firm—No Change Expected

CONSTRUCTION effort both in New York and Chicago is so extensive it partakes slightly of boom proportions. Cleveland and Pittsburgh sections offer a direct contrast in that most larger projects are postponed for later action. In the former sections inquiries are numerous, while in the latter, particularly Cleveland, few jobs are up for figures. Eastern lettings in the 1000 to 5000-ton range are numerous. At New York a 9500-ton subway and a 20,000-ton elevated roadway are slated for early action. Chicago has about 30,000 tons actively pending and two jobs taking 5000 tons, are up in California. Third quarter books are not yet opened but the general impression is the 1.95c, Pittsburgh, price will not change. Mill deliveries still are deferred.

STRUCTURAL SHAPE PRICES, PAGE 1483

New York, May 28.—Structural steel demand shows an increase. Awards are led by 3400 tons for a court house at Camden, N. J. Inquiry also is heavier. Several projects call for more than 1000 tons apiece. Another subway section in the Bronx will take 9500 tons and the second section of the west side elevated highway, to involve more than 20,000 tons, will be given early consideration. Bids for additional work on the Queensboro bridge were rejected. This will come up soon for new bids. Threatened labor difficulty in the building industry has been averted by the settlement of differences with no delay in construction.

Boston, May 28.—About 1000 tons of structural steel involved in two state bridges in Cambridge, Mass., reported awarded to Phoenix Bridge Works last week was in error. The contract was placed with the Boston Bridge Works. Less than 2000 tons since has been awarded, including the Harvard university gymnasium, with the Palmer Steel Co. Among the contracts pending is 3000 tons for coal breakers for the Stone & Webster Inc., which will be awarded soon.

Worcester, Mass., May 28.—Structural steel demand is running ahead of last year with prospects of remaining heavy for two or three months. Four awards totaling 1100 tons were announced during the week, all going to Eastern Bridge & Structural Co.

Philadelphia, May 28.—Shape demand continues good. While eastern mills still operate full they can only ship in one to three weeks, depending upon the section wanted. Mills here ontinue to book heavy tonnages from other districts. Shape prices range from around 2.00c to 2.11c, base, delivered Philadelphia.

Pittsburgh, May 28.—Some fabricating shops in this district are well engaged, although little business is emanating from this vicinity. Bulk of current activity is made up of small jobs calling for less than 100 tons at a time. A fair volume of business is on inquiry and several substantial projects will be up for bids within the next few months. Specifications for plain material are fairly active. The market is steady at 1.95c, Pittsburgh, with no announcement yet of a third quarter price.

Buffalo, May 28.—Boehm Bros. took the contract for the temporary bridge over the five railroads crossing Ridge road in Lackawanna, N. Y., and will place 400 tons of structural steel. The permanent bridge will require several thousands of tons but the exact amount will be determined by its size and character. It now is being designed and construction will commence this summer.

Cleveland, May 28.—Inquiries as well as awards in the structural shape market have fallen off considerably. Little tonnage is up formally for bids, although considerable work is projected on which action has been indefinitely postponed. Makers have not opened books for third quarter but the general impression is that the figure of 1.95c, Pittsburgh will be continued. Mill specifications are holding up fairly well. A small job, 160 tons was let in Toledo, O. The high school there is being refigured and now the tonnage is much smaller, no more than 500 tons. The United States Aluminum Co. forge shop group, taking 500 to 600 tons, has been let to McClintic-Marshall Co.

Chicago, May 28.—Between 25,000 and 30,000 tons of structural steel is being figured actively for building and bridge work in territory tributary to Chicago. The picture is shifting definitely as regards structural activity. More work now is approaching the active stage than at any time this year. Bolstered by car builders' demands, deliveries are extended as much as 10 weeks on plain material and further on structural plate steel. Several fabricators may have to buy material from stock. Structural mill operations are as near capacity as supplies of semifinished steel permit. One maker has sold third quarter shapes at $1 above the recent level, indicating makers will seek to hold to 2.05c to 2.15c next quarter.

Awards Compared

	Tons
Awards this week	33,289
Awards last week	47,630
Awards two weeks ago	32,501
Awards this week in 1928	15,667
Average weekly awards, 1928	39,082
Average weekly awards, 1929	41,688
Total awards to date, 1928	802,203
Total awards to date, 1929	917,138

CONTRACTS PLACED

5000 tons, hotel, Canadian National Railways, Vancouver, B. C., to Dominion Bridge Co. of Montreal, through E. J. Ryan Contracting Co. Ltd.

3400 tons, court house and annex, Camden, N. J., to American Bridge Co., through F. W. Marks Co.

2500 tons, office building, Pearl, Liberty and Cedar streets, New York, to Hedden Iron Construction Co.

1700 tons, hospital, Jersey City, N. J., to Lehigh Structural Steel Co.

1300 tons, apartment hotel, 1242 Lake Shore drive, Chicago, to American Bridge Co.

1200 tons, four warehouses, Liggett & Myers Tobacco Co., Durham, N. C., to Virginia Bridge & Iron Co.

1050 tons, Harvard gymnasium, Cambridge, Mass., to Palmer Steel Co.

1000 tons, galvanized catenary towers, Pennsylvania railroad, to Lehigh Structural Steel Co.

990 tons, two state bridges, Cambridge, Mass., to Boston Bridge Works Inc., previously reported as awarded to Phoenix Bridge Co.

950 tons, public school No. 10, New York, to Easton Structural Steel Co.

900 tons, Mitchell street viaduct, Atlanta, Ga., to Virginia Bridge & Iron Co., through MacDougall Construction Co.

860 tons, highway bridges in Arkansas, to Virginia Bridge & Iron Co.

800 tons, Y. M. C. A., Paterson, N. J., to unstated fabricator.

750 tons, building, Youngstown Steel Door Co., Youngstown, O., to McClintic-Marshall Co.

700 tons, Pennsylvania railroad, substation, to Lehigh Structural Steel Co.

630 tons, school, 108 East Eighty-ninth street, New York, to Hinkle Iron Works.

617 tons, factory, 192nd street, New York, to National Bridge Works.

600 tons, Baptist home for aged, New York, to Hedden Iron Construction Co.

600 tons, forge shop group, United States Aluminum Co., Cleveland, to McClintic-Marshall Co.

500 tons, Pennsylvania railroad bridge, Lemoine, Pa., to American Bridge Co.

500 tons, highway bridge, Margate to Northfield, N. J., to Bethlehem Steel Co.

475 tons, Rockhill Printing Co., Rockhill, S. C., to McClintic-Marshall Co.

450 tons, power house, Hawaiian Electric Co., Honolulu, to Moore Drydock Co. Oakland, Calif. Listed in IRON TRADE REVIEW of May 16 as 200 tons.

450 tons, apartment building, Fifty-eighth and First avenue, New York, to Dreier Iron Works.

440 tons, bridge, Reading railroad, Tuckerton, N. J., to Phoenix Bridge Co.

400 tons, building, National Union Building Co., Jackson, Mich., to American Bridge Co.

375 tons, building, Century Cement Corp., Rosedale, N. Y., to Pittsburgh Bridge & Iron Co.

350 tons, garage, East Seventy-sixth street, New York, to Dreier Iron Works.
325 tons, Lamar street viaduct, Dallas, Tex., to Virginia Bridge & Iron Co., through L. H. Lacy Co.
300 tons, Boys' club building, Worcester, Mass., to Eastern Bridge & Structural Co.
300 tons, building, Worcester Gas Light Co., Worcester, Mass., to Eastern Bridge & Structural Co.
300 tons, train shed work, New York Central railroad, Cleveland, to American Bridge Co.
300 tons, R. K. Laros Silk Co. mill, to Bethlehem Fabricators Inc.
265 tons, substation, Potomac Power Co., Washington, to Barber & Ross.
250 tons, building, Worcester Pressed Steel Co., Worcester, Mass., to Eastern Bridge & Structural Co.
250 tons, building, General Baking Co., Worcester, Mass., to Eastern Bridge & Structural Co.
225 tons, additions to power station, El Paso Electric Power Co., El Paso, Tex., to Virginia Bridge & Iron Co.
225 tons, plant extension, American Rolling Mill Co., Ashland, Ky., to Jones & Laughlin Steel Corp.
200 tons, office building addition, Sixth and Olive streets, Los Angeles, to Consolidated Steel Corp.
200 tons, Staco milling plant, Ponthrey, Vt., to New England Structural Co.
200 tons, hospital, Kings highway, Brooklyn, to Gaynor & Rosenblum.
200 tons, pipe supports, Gulf Refining Co., Philadelphia, to Belmont Iron Works.
175 tons, addition, Carpenter Steel Co., Reading, Pa., to Shoemaker Bridge Co.
161 tons, state bridge, Hartland, Vt., to unstated fabricator.
160 tons, building, National Supply Co., Toledo, O., to American Bridge Co.
150 tons, school, Western avenue, Los Angeles to Minneapolis Steel & Machinery Co.
150 tons, settlement house, Boston, to New England Structural Co.
150 tons, plant, Meurer Steel Barrel Co. Inc., Long Island City, N. Y., to the Austin Co.
146 tons, state bridge, Rockingham, Vt., to Thomas McCabe, Waltham, Mass.
135 tons, building, Moloch Foundry & Machine Co., Waukauna, Wis., to Lakeside Bridge & Steel Co.
125 tons, hospital building, Baychester avenue, New York, to Elby Structural Steel Co.
100 tons, nurses' home, Children's hospital, Boston, to New England Structural Co.
Unstated tonnage, arch centers, Wrightsville-Columbia bridge, Susquehanna river, Pennsylvania, to Blaw-Knox Co.

CONTRACTS PENDING

9500 tons, subway section 6, Bronx, N. Y.
5000 tons, building, Northern Indiana Public Service Co., Michigan City, Ind.
4000 tons, addition to International telephone building, Broad, Pearl and Beaver streets, New York.
4000 tons, coal breakers, Philadelphia & Reading Coal & Iron Co.
3000 tons, plant, Proctor & Gamble Co., Baltimore. Bids being taken.
3000 tons, highway bridge over Illinois river, Cedar street, Peoria, Ill.
3000 tons, coal breakers, Locust Summit, Pa., Stone & Webster Inc.
3000 tons, Southern California Edison Co. building, Fifth street, Los Angeles. General contract to P. J. Walker Co.
2800 tons, further plant extension, International Harvester Co., East Moline, Ill.; bids in.
2300 tons, National Savings bank, Albany, N. Y.
2000 tons, Southern California Telephone Co. building, 740 South Olive street, Los Angeles, general contract to P. J. Walker Co.
1500 tons, high school, Trenton, N. J.
1200 tons, bulkhead construction, at Gravesend, New York.
1000 tons, addition, telephone exchange building, Omaha, Nebr.
1000 tons, bridges, Pennsylvania railroad.
900 tons, three bridges, Pennsylvania railroad, one at Harrisburg, Pa., and two on Elmira division; American Bridge Co. low bidder.
850 tons, city hall, New Haven, Conn.
750 tons, office building, Third and Santa Monica streets, Santa Monica, Calif. General contract to Orndorff Construction Co.
750 tons, factory building, Rockford, Ill., for undisclosed owner.
600 tons, exhibit building, state fair grounds, Pomona, Calif. Bids June 17.
600 tons, building, Cudahy Packing Co., Chicago.
600 tons, bridge, Ludlow, N. J. Bids taken.
576 tons, Tacoma avenue viaduct, Tacoma, Wash. Bids June 11.
500 tons, dam for Pasadena, Calif. Bond election June 17.
500 tons, plant, C. A. Dunham Co., Michigan City,, Ind.
500 tons, high school, Toledo, O. Revised bids in.
500 tons, New York State highway bridges.
450 tons, Bank of Philadelphia & Trust Co., Germantown, Pa.
450 tons, West Town-State Bank building, Chicago. Bids June 1. Mundie & Jensen.
400 tons, home for aged, 230 East Broadway, New York.
400 tons, temporary bridges, Ridge Road, Lackawanna, N. Y., railroad project; general contract to Boehm Bros., Buffalo.
300 tons, Field house, Pullman, Wash., Minneapolis Steel & Machinery Co. low bidder.
300 tons, interstate bridge from Niagara, Wis., to Iron Mountain, Mich. General contract to Chernus Construction Co., Minneapolis, at $96,-113.
260 tons, two bridges, Vineland avenue, Los Angeles. Bids opened.
250 tons, bank and office building, Floral Park, Long Island, N. Y.
250 tons, housing station, West Farms road and 170th street, New York.
200 tons, Presbyterian church, Passaic, N. J.
200 tons, Hunting Park avenue bridge, Philadelphia; general contract to Mundy Paving Co.
160 tons, City-County building addition, Seattle. Bids June 3.
125 tons, opera house, Augusta, Me.
110 tons, New Jersey state highway bridge; general contract to John F. McGrevy Co., Manasquan, N. J.
100 tons, church, Waterville, Me.
Unstated tonnage, National Savings bank, Albany, N. Y.
Unstated tonnage, plant, Cummer Products Co., Dunham road and Industrial avenue, Maple Heights, Cleveland. Plans to be issued shortly.
Unstated tonnage, 26-story hotel and theater building, West State street, Akron, O., to cost $2,500,000. James A. Tuck, Chicago, supervising architect.

Concrete Bars

Bridge Award Involves 4000 Tons—Lettings More Numerous in Various Markets

PRONOUNCED activity in concrete bar lettings is topped by a 4000-ton Susquehanna river bridge awarded Edward T. Edwards. Several other jobs take 500 to 1000 tons apiece. These with numerous smaller orders, create one of the best market weeks of the year. Prospects are bright with such items as 2000 tons at Seattle; 1200 tons at Chicago and 750 tons at Pasadena, Calif., up.

REINFORCING BAR PRICES, PAGE 1483

New York, May 28.—Demand for concrete reinforcing bars is brisk. A few new jobs have come out for general contractors' bids. The market on cut lengths for mill shipment continues 2.30c, base, Pittsburgh, equivalent to 2.64c, delivered New York, and while there is some cutting of this level the market is generally firm.

Boston, May 28.—Quietness continues to characterize the concrete bar market. Less than 200 tons in odd tonnages, was awarded. Several propositions are ahead, including 225 tons for a hospital in this city. Prices hold firm.

Pittsburgh, May 28.—The movement of concrete reinforcing bars continues heavier to points outside the district than to local consumers. Mill specifications hold at approximately the April rate, with delivery generally extended two to four weeks. Local sellers are figuring on a fair volume of work, but current awards generally involve small tonnages. No intimations are heard of a change in current prices for third quarter. The market is steady at 2.30c, Pittsburgh, for cut lengths and 2.00c for stock lengths.

Chicago, May 28.—Shipments of rail steel reinforcing bars in this territory are estimated at 5 to 10 per cent ahead of a year ago and for May, are heavier than any month this year. Billet bar shipments, however, are slightly under last year. Several tonnage projects are nearing the active stage. A department store is taking 800 tons. A group of dormitory buildings and several buildings to house the Oriental institute, as a part of the $10,000,000 building program of the University of Chicago, remains to be placed. Billet reinforcing bars are holding at 2.40c for lots of 18 tons and over.

Awards Compared

	Tons
Awards this week	15,475
Awards last week	4,436
Awards two weeks ago	2,700
Awards this week in 1928	3,860
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,660
Total awards to date, 1928	160,442
Total awards to date, 1929	146,521

CONTRACTS PLACED

4000 tons, Columbia-Wrightsville bridge over Susquehanna river, Pennsylvania, to Edward T. Edwards.
1000 tons, warehouse, Sachs Quality Furniture Co. Inc., New York, to Truscon Steel Co., through White Construction Co.
1000 tons, mill and elevator buildings, Pillsbury Co., Springfield, Ill., to Laclede Steel Co.
900 tons, freight warehouse, St. Louis Terminal Railway association, to Laclede Steel Co.
850 tons mesh, boulevard at Jones Beach, N. Y., to Wickwire-Spencer Steel Co., through Carroll-McCreary & Co. Inc.
800 tons, building, Anchor Cap & Closure Corp., Long Island City, N. Y., to Truscon Steel Co., through White Construction Co.
600 tons, Stock Exchange building, San Francisco, to Soule Steel Co.
500 tons, Diablo dam, Skagit river, Washington power project, to Northwest Steel Rolling Mills.
500 tons, sewer construction, Brooklyn, N. Y.,

to McClintic-Marshall Co.
480 tons, building, Merchants Bank & Trust Co., Jackson, Miss., to Connors Steel Co.
455 tons, warehouse, Port Commission, Oakland, Calif., to Gunn, Carle & Co.
300 tons, building, Pierce Arrow Motor Car Co., Brooklyn, N. Y., to Jones & Laughlin Steel Corp.
300 tons, first section, Westside elevated highway, to Day & Goater, through James Stewart & Co. Inc.
300 tons, city hall, Camden, N. J., to Concrete Steel Co.
275 tons, West Spokane street viaduct, Seattle, to Pacific Coast Steel Co.
271 tons, Harbor avenue viaduct, Seattle, to unstated interest.
250 tons, garage, Fifty-fifth street and Lake Park avenue, Chicago, to Calumet Steel Co.
230 tons, high school, White Plains, N. Y., to Truscon Steel Co.
200 tons, Downtown Athletic club, New York, to Kalman Steel Co.
200 tons, building at Baltimore for Edward Katzinger & Co., Chicago, to Kalman Steel Co., through M. A. Long Co.
175 tons, telephone building, Bridgeport, Conn., to Truscon Steel Co.
175 tons, service station, Pierce-Arrow Motor Sales Co., Brooklyn, N. Y., to Truscon Steel Co.
150 tons, work for Illinois Central railroad, in Chicago, to American System of Reinforcing.
150 tons, high school, Little Rock, Ark., to Connors Steel Co.
150 tons, St. Joseph's home for boys, Philadelphia, to Concrete Steel Co.
145 tons, warehouse, Santini Bros. Inc., New York, to Jones & Laughlin Steel Corp., through Turner Construction Co.
135 tons, office building, Aurora, Ill., to Olney J. Dean & Co.
135 tons, Wassaic state hospital building, Amenia, N. Y., to Kalman Steel Co.
130 tons, state highway bridge, Goshen, Ind., to Concrete Engineering Co.
119 tons, for Montecito County water district, Montecito, Calif., to unstated interest.
100 tons, apartment, Clay and Jones streets, San Francisco to W. C. Hauck & Co.
100 tons, high school addition, Bronxville, N. Y., to Concrete Steel Co.
100 tons, grade crossing elimination work, Yonkers, N. Y., to National Bridge Works.
100 tons, Lefcourt building, Newark, N. J., to Truscon Steel Co.
100 tons, Bank of Manhattan, 40 Wall street, New York, to Concrete Steel Co.
100 tons, library, University of Maryland, Baltimore, to Maryland Steel Products Co.

CONTRACTS PENDING

2000 tons, City-County building addition, Seattle. Bids June 3.
1200 tons, Burnham avenue viaduct, Chicago.
800 tons, Goldblatt department store, Chicago.
750 tons, dam for Pasadena, Calif. Bond election June 18.
500 tons, building, New Jersey Power & Light Co., Holland, N. J.
500 tons, addition to Lying-in hospital, Chicago.
450 tons, government hospital for veterans, Somerset Hills, N. J.
281 tons, paving in Sacramento county, Sacramento, Calif. Bids opened.
275 tons, building, Frankford Grocery Co., Frankford, Pa.
250 tons, road work from Matawan to Holmdell, N. J., general contract to Jannarone Contracting Co., Belleville, N. J.
250 tons, building, Jewel Tea Co., Barrington, Ill.
200 tons, plant, Proctor & Gamble Co., Baltimore. Bids being taken.
180 tons, paving in Santa Clara county, Sacramento, Calif. Bids opened.
175 tons, for Lake road, Niagara county, N. Y. Bids at Albany June 3.

Car Plant Employs More

Butler, Pa., May 28.—Standard Steel Car Co. will employ about 400 additional workers as rapidly as they can be obtained. This will make a total working force of 1600 men. The company has orders for about 4000 steel freight cars. Orders received and in prospect are expected to keep the plant busy the rest of the year.

Rails, Cars

Car Awards More Numerous—May Total Fast Approaching April's

MORE than 2500 cars and bodies awarded last week, bring the May total to approximately 6950 as against 8205 in April. Baltimore & Ohio added 1000; another road 750. The Mexican National bought 240 and has 800 pending. Total domestic cars pending exceeds 3700. Second rail tonnage possibilities brighten. Track fastening purchases are well sustained.

RAILROAD TRACK PRICES, PAGE 1484

Chicago, May 28.—Additional secondary rail buying is taking from definite inquiries are expected shortly. Rail mills are pressed to the limit for shipments against outstanding tonnage. Track fastenings sales totaled 2500 to 3000 tons in the week just closed.

Car building shops are well engaged. most western territory shops will probably operate at or near capacity throughout the summer. Specifications from car builders to steel finishing mills are at a high rate, but much of the requirements on pending car orders remain to be prepared. Mexican National railway has ordered 240 box cars and asks bids on 800 additional box cars. Considerable tonnage is added to mill books by the cars just awarded by the Nickel Plate. It is reported in this market that 5000 additional cars will be on inquiry shortly.

New York, May 28.—Placing of 1000 box car bodies by the Baltimore & Ohio and of 750 freight cars by the Nickel Plate features a generally more active market. While freight car buying for the month now closing will likely fall short of the 8205 freight cars placed in April, 6950 cars have been closed so far in May. At present, 3700 domestic freight cars and 200 passenger cars are pending.

Pittsburgh May 28.—Little new business is noted in spikes, tie plates and other track fastenings, but shipments against old orders of such material continue active. The light rail market is quiet and May tonnage is running below that of April. Local car builders are well engaged as the result of previous orders and one additional order for 225 cars is noted.

Seattle, May 28.—Northern Pacific railroad has ordered 300 tons of spikes from Pacific Forge Co. and Pacific Coast Steel Co.

Toronto, Ont., May 28.—Canadian Pacific railroad has placed 500 flat cars with the Canadian Car & Foundry Co., Montreal, involving an expenditure of approximately $1,500,000. This will bring orders now on the company's books up to about $35,000,000. Further orders for equipment are likely to be placed by Canadian railroads about the middle of July. President Sir H. Thornton, of the Canadian National, has asked the government for appropriations to provide for new locomotives and passenger and freight cars.

CAR ORDERS PLACED

Atlanta & West Point, eight baggage-mail cars, to American Car & Foundry Co.
Baltimore & Ohio, 1000 box car bodies, to Standard Steel Car; these are in addition to 3070 freight cars noted in last week's issue as distributed among various builders; seven cafe parlor cars to Pullman Car & Mfg. Corp.
Canadian Pacific, 500 flat cars to Canadian Car & Foundry Co.
Chicago & Alton, repairs to 130 box cars, to own shops.
Erie, 25 caboose cars, to Magor Car Corp.
Hocking Valley, two diners, to Pullman Car & Mfg. Corp.
Mexican National railway, 240 box cars, to Standard Steel Car Co.
New York Central, 20 passenger coach bodies and five passenger and baggage car bodies, to American Car & Foundry Co.
New York, Chicago & St. Louis, 750 freight cars awarded as follows: 500 automobile box cars to the Standard Steel Car Co. and 250 high-side steel gondolas to American Car & Foundry Co.
New York, New Haven & Hartford, nine multiple unit passenger cars to Stadnard Steel Car Co.
Northern Pacific, 10 baggage and mail cars to American Car & Foundry Co.
Virginia-Carolina Chemical Corp., Richmond, Va., five tank cars for sulphuric acid, to General American Tank Car Corp.
Wichita Falls & Southern, 15 ballast cars to American Car & Foundry Co.

LOCOMOTIVE ORDERS PLACED

Chicago, Indianapolis & Louisville, 10 Mikado type locomotives, to American Locomotive Co.
Royal State Railways of Siam, six locomotives, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Anglo-Mexican Petroleum Co., 10 tank cars.
Delaware & Hudson, repairs to 150 hopper cars.
Mexican National, 800 box cars.
New York, New Haven & Hartford, 15 baggage and mail cars; these are in addition to substantial number of miscellaneous coaches, previously noted as pending.
Pennsylvania, 25 horse cars, seven diners and 50 cabooses.
Pittsburgh Steel Co., 10 gondola cars.

Chicago Employment Up

Employment in Chicago and in downstate industrial centers showed a small increase in the first three weeks of May, according to the Illinois department of labor. The employment outlook in the building trades was especially satisfactory.

West Leechburg Steel Corp., Pittsburgh, has installed a system of insured pensions.

Strip

Third Quarter Prices Same as for Second—Backlogs Reduced Little by Current Shipments

PRODUCERS of strip have opened books for third quarter at the same prices as have prevailed during second quarter. Considerable tonnages have been booked for that delivery. Heavy production has had some effect on deliveries but backlogs remain large and material is not available under several weeks. Semi-finished steel supplies continue restricted.

STRIP PRICES, PAGE 1484

Pittsburgh, May 28.—Specifications for strip steel are slow to decline despite the heavy tonnage entered on producers' books this year. May shipments are expected to exceed April but fall below March. Specifications from some automotive interests have declined markedly this month although the fact that this is confined to only a few companies makes the decrease in the total tonnage slight. Producers gradually are shortening deliveries and on some sizes of hot strip, shipment of three to four weeks can be effected. On cold rolled material, however, shipment generally is extended four to six weeks. Operations of producers continue as close to capacity as possible although schedules of some interests have been restricted by a curtailment in their supplies of semifinished steel. Producers postpone opening books for third quarter, preferring to ascertain the price for semifinished material. Strip producers would prefer to continue current prices, firmly held at 1.90c and 2.00c, Pittsburgh, for the two sizes of hot strip, and 2.75c to 2.85c for cold rolled strip.

New York, May 28.—Prices on strip steel have been reaffirmed for third quarter. Makers generally started to take third quarter contracts yesterday and a good portion of third quarter requirements in this territory already has been entered. Specifications against second quarter contracts continue heavy and mill schedules are practically as extended as a month or two ago. With most mills four weeks is the earliest shipment that now can be promised, although some are considerably further extended.

Cleveland, May 28.—While not all makers of hot and cold strip steel have opened books for third quarter, some have done so at unchanged prices. Demand remains heavy, despite the tapering off in automotive tonnage. Miscellaneous consuming lines are active, chiefly metal furniture, office and household appliance and hardware manufacturers. May tonnage in both cut and coiled length is ahead of that of April in a number of instances.

Chicago, May 28.—Cold rolled strip mills have opened books for third quarter at 2.75c to 2.85c, Pittsburgh-Cleveland, for minimum lots of 3 tons and over. This does not represent an advance for any producers in this territory. Specifications are holding to a higher level than had been expected, as the outlook earlier in May had indicated declines. Deliveries are gaining on specifications and backlogs are being slowly reduced. Cold rolled strip mill operations in this territory are 70 to 75 per cent.

Call Range Boiler Meet

Washington, May 28.—Federal trade commission has called a trade practice conference here, June 4, for the range boiler industry. Commissioner Edgar A. McCulloch is to preside.

Cold Finished Steel

Third Quarter Tonnage Being Booked at Unchanged Prices

COLD FINISHED PRICES, PAGE 1484

Pittsburgh, May 28.—Books have been opened for third quarter shipment of cold finished steel bars by a leading producer at 2.30c, Pittsburgh and Chicago. This price is unchanged from that prevailing on current contracts. Turned and ground shafting continues 2.65c to 3.10c, depending on size. Current business is well sustained, particularly from automotive interests, and is exceeding expectations. Commitments from some interests are off slightly, offset by heavy tonnage taken by other buyers.

Cleveland, May 28.—Books of cold bar finishers have been opened for the third quarter at unchanged prices, namely 2.35c, Cleveland. Demand is holding up satisfactorily, despite the decline in automotive tonnage, since other consuming lines appear to be increasing their requirements. Automotive tonnage for May, however, was as a rule heavier than that of April. The curtailment applies to June.

Wire

Third Quarter Prices Are Unchanged from Second—May Tonnage to Exceed that of April

SHIPMENTS of wire and wire products are heavy and May seems likely to show some gain over April. Nails show slightly more activity but are not brisk. Agricultural areas are taking larger tonnages. Third quarter pricess are being reaffirmed from second quarter. The market is strong and prices show no tendency to weaken. Production is unchanged.

WIRE PRICES, PAGE 1484

Chicago, May 28.—Satisfactory bookings of wire products are reported from farm areas. Orders for woven fencing, barbed wire and wire nails have made a moderate gain. Third quarter contracting is expected to start late this week. It is reported present prices will prevail. Western wire mill operations have gained slightly and are at 70 to 75 per cent. Prices to large jobbers are steady at 2.55c, Chicago or western mills, for bright plain wire, and $2.70 for wire nails.

Worcester, Mass., May 28.—General demand continues active with prices firm. Automobile needs predominate. Wire rope has shown a falling off and insulated wire is slow, due to fluctuations in copper wire.

Pittsburgh, May 28.—Sales of wire products continue to exceed those of April and May tonnage is expected to show a fair improvement. Nail demand is picking up, although the improvement is not brisk. Fencing material also is more active and steady demand for manufacturers' wire continues. Producers have made no announcement of third quarter prices. The current market is steady at 2.50c to 2.60c, Pittsburgh, for plain wire and $2.65 to $2.75 for wire nails.

New York, May 28.—Prices on wire, nails and other wire products have been reaffirmed through third quarter. Third quarter contracts for wire already have been entered to some extent. Nails continue slow. Jobbers continue well supplied with nails.

Buffalo, May 28.—Wire mills are operating at 90 per cent. Demand for welded mesh for road construction is heavy, although sales are usually in carloads. Wire prices are firm.

Cleveland, May 28.—Demand for wire, wire nails, etc., is about on a par with April. Sales so far this year have been heavier than in any like period in several years. Manufacturers' wire shipments are well sustained for different uses. Nails are fair. Prices are firm. Books are not yet opened for third quarter.

Nonferrous Metals

Shipments Continue Close to High Rates of Recent Months—Some Indications of New Buying Develop—Prices Steady

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin—New York Spot	Straits Tin—New York Futures	Lead—New York	Lead—East St. Louis	Zinc—St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
May 22	18.00	18.00	17.50	43.75	43.87½	7.00	6.75	6.60	23.90	8.87½	35.00
May 23	18.00	18.00	17.50	43.75	43.90	7.00	6.75	6.60	23.90	8.90	35.00
May 24	18.00	18.00	17.50	43.62½	43.87½	7.00	6.77½	6.62½	23.90	8.90	35.00
May 27	18.00	18.00	17.50	43.62½	43.87½	7.00	6.80	6.62½	23.90	8.87½	35.00
May 28	18.00	18.00	17.50	43.50	43.75	7.00	6.80	6.62½	23.93	8.87½	35.00

NEW YORK, May 28.—Specifications against contracts and shipments of nonferrous metals continue close to the high levels established in recent months. Some indications have been seen of new buying, but actual new demand has remained light. Price changes have been few and small.

Brass and copper rolling mills still have large order books and some shipments are extended. Most deliveries, however, can be made in four to six weeks. Some additional buying is expected for June shipment.

Copper—Prices continue steady with business still limited mostly to custom smelters. Other producers remain out of the market. They hold large domestic bookings for June and July. More active export buying is expected within a week or 10 days. Export purchases lately have been a few hundred tons a day, whereas normal business is 2000 tons or more. Domestic business also has been a few hundred tons a day compared with the normal average of around 3000 tons. A few users have asked for postponement of May shipment into June, and a few others for the opposite change. The latter are in the majority.

Zinc—Buying continues light. A little business has been done as high as 6.80c, East St. Louis, but most sales have been about 6.60c to 6.65c. Light trading recently was done at slightly lower figures. Some producers are holding for the top price. Producers have about enough orders on their books to meet one month's shipments. The ore market is unchanged at $44 a ton. The wide spread in metal prices is at least partly due to different methods in buying ore.

Tin—Some business has been done in tin every day, but total sales during the past week were light. A large portion of business has been for shipment in early months, but some of it has extended into autumn arrival. Domestic deliveries this month may establish a new record, it is reported. Despite heavy consumption, production is sufficient to maintain adequate supplies in all market centers.

Lead—Buyers have shown some awakened interest, apparently being still in need of much metal for June. Most of the business in the past few days has been on the basis of 6.80c, East St. Louis. Some also has been done at 7.00c, New York. Some business was done recently at 10 points or so under the St. Louis price, but the cheap offerings have been taken up, so that now little metal is available under 6.80c.

Aluminum—Buying is routine but shipments continue unusually large. Prices are unchanged—*Daily Metal Trade.*

Hungary's 1928 output of steel was 4,860,000 metric quintals, 4 per cent over 1927.

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	$10.25
Zinc strip (100-pound base)	$9.25
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.00 to 12.50
Chicago	11.50-nominal
Cleveland	12.25 to 12.50
HEAVY YELLOW BRASS	
Cleveland	8.50 to 8.75
ZINC	
New York	3.50 to 3.75
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	14.00 to 14.25
Boston	13.00 to 13.50
Chicago	12.50-nominal
Cleveland	13.50 to 14.00
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	8.50 to 9.00
LIGHT COPPER	
New York	12.00 to 12.25
Chicago	11.50-nominal
Cleveland	12.50 to 13.00
LIGHT BRASS	
Boston	7.00 to 7.50
Chicago	7.50-nominal
Cleveland	6.75 to 7.00
ALUMINUM	
Clippings, Cleveland	17.50 to 18.00
Borings, Cleveland	9.50 to 10.00
Cast, Cleveland	12.50 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	16.25 to 16.50

Coke By-Products

Export Needs Take Surplus—Prices Steady—Sulphate Active

New York, May 28.—Demand for light oil distillates continues good, with no accumulation of supplies. Listed prices continue firm and unchanged. Any surplus is well taken care of by steady export demand. Production holds well to its recent volume, but supplies are well absorbed against contracts. The lacquer industry is buying briskly. Some producers report supplies of phenol slightly lower, naphthalene is active and firm.

Sulphate of ammonia is slightly more active, with the new season opening well after a good cleanup on old stocks. Supply is well down and production remains normal.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.20 to 2.30

Quicksilver Is $123

New York, May 28.—Quicksilver is generally quoted at $123 per flask, but some for shipment west is offered more cheaply.

Recently elected officers of the Pittsburgh chapter of the American Society for Steel Treating are: Chairman, D. J. Richards, E. F. Houghton & Co., Pittsburgh; vice chairman, E. H. Dix Jr., Aluminum Co. of America, New Kensington, Pa.; and secretary-treasurer, H. L. Walker, Box 521, North Side, Pittsburgh.

Warehouse

Mill Delivery Situation Sending Many Orders to Jobbers—May Tonnage Higher Than April—Prices Firm in Most Markets

MANY buyers, unable to wait for deferred mill deliveries in various sections, are meeting requirements from warehouse stocks. May jobber tonnage is 10 to 15 per cent ahead of April's. Warehouses generally will adopt the new bases for blue annealed sheets as of June 1. Prices are firm.

Philadelphia—Jobbers report a good volume of business with all prices firm and unchanged.

Pittsburgh—Warehouse activity is well maintained, with total business slightly higher than a month ago. Demand is well distributed over various products and from different consuming lines. Sales still reflect the sold-up condition of mills in certain products. Jobbers are preparing to adopt next quarter the new base gage on blue annealed sheets. Few changes are looked for throughout the general list during the third period. Current prices are firmly held on practically all business.

Buffalo—Warehouses experienced a minor slackening of demand last week. Business continues good, however, and is running substantially ahead of the first quarter of this year and the second quarter of 1928. Plate demand is much improved. Buffalo warehouses are considering the readjustment of differentials on blue annealed sheets to keep pace with mill changes.

Cincinnati—May warehouse business in this market will probably aggregate less than that of April. Bad weather has slowed up outside work. Business only has been fair in structural shapes, plate and concrete bars.

Cleveland—Jobbers here are finishing up the month with aggregate sales at least 10 per cent greater than during April. Demand applies to everything carried. Sheet metal jobbers are experiencing somewhat of a boom in industrial demand. Prices are firm. Jobbers will adopt on June 1 the new bases for blue annealed sheets.

St. Louis—The call for materials from iron and steel warehouses for emergency work incident to the floods has reached considerable size. This demand comes from municipalities, highway commissions, United States government river administration as well as public utilities and railroads.

The St. Louis building strike is still unsettled and a large amount of work is tied up which exercises a quieting effect on demand for building materials. General manufacturing accounts for liberal tonnages. Railroad shops are continuing to take fair tonnages of iron and steel.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York †††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.80c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles, lcl.	3.00c
New York	2.90c to 3.30c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.70c to 3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore	3.50c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York	4.65c to 4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit, 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.15c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.40c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.50c(a)	4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.10c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. †† Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Demand for Steel Holds Steady—Much Building Is in Prospect—Prices Firm

STEEL is in demand all along the Pacific coast, with steady buying of small lots and sufficient large projects in preparation to assure a steady tonnage. Award of 5000 tons of structurals for a hotel at Vancouver is the largest of the week. Pipe promises activity and tanks are planned which will require a large tonnage of plates. Prices are holding firm.

Seattle, May 22.—The week's feature in the Pacific Northwest was the award of 5000 tons of structurals for the Canadian National railroad hotel at Vancouver, B. C., to the Dominion Bridge Co. This is the largest contract for steel placed on this coast this year.

Lettings in Seattle this week were greater than normal totaling about 1800 tons of reinforcing materials and plates. Several large contracts are scheduled for action in the near future. Prices are holding firm.

Bars, Plates and Shapes

Mill prices of plates, shapes and bars are firm at 2.35c, plates being well maintained at this new level.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Less complaint is heard about competition of foreign materials, imports being less than a year ago. Reinforcing bars are unchanged at 2.30c.

Local steel mills report unchanged operations, considerable business in lots of less than 100 tons having been booked. Awards of reinforcing bars this week totaled 775 tons. Northwest Steel Rolling Mills took 500 tons for the Diablo dam, a Seattle municipal project, a contract that has been pending for months. Pacific Coast Steel Co. will furnish 275 tons for the city's West Spokane street viaduct. The latter company also has the contract for supplying 300 tons of steel involved in 3000 kegs of track spikes for the Northern Pacific railroad through the agency of the Pacific Forge Co.

Keen competition between local and outside plants for boiler and tank jobs recently placed here is evident. The Seattle Boiler Works has booked contracts for various projects involving 675 tons of plates as follows: 250 tons, three tanks for the General Petroleum Co., two of 5400 barrels capacity each and one of 9500 barrels; 200 tons various tanks for Union Oil Co.; 150 tons, plates and angles for boiler breeching for the new boiler for the Snoqualmie Falls Lumber Co.; 75 tons of oil tanks for the Coos Bay Lumber Co., at Coos Bay, Oreg.

In addition to the award for 5000 tons of structurals for the Vancouver, B. C., hotel project, on which local fabricating plants were unable to bid, nothing of interest has developed in the structural field. Several projects are to be up for figures soon. In the meantime, local fabricating shops are fully occupied. Soundings are being taken for the proposed bridge across the Narrows at Tacoma and capital has been raised for the span between Bremerton and East Bremerton. On the latter project bids will be asked within 60 days.

Finished Materials

Jobbing business is active and a large turnover is reported. Volume is greater than last month. Mill buying has improved. Wholesale prices are unchanged. Sheets are not moving in as large volume as expected but a better demand is expected.

Cast iron pipe agencies report continued interest in their product throughout the Northwest but recent business has consisted of small tonnages, running from 75 to 100 tons. Seattle will open bids this week for a project involving 500 tons which may go to French manufacturers who have taken practically all municipal awards in Seattle for several months.

Old Material

The cast iron scrap market is not as firm as last month but sales of choice material continue on a basis of $14, net ton. Receipts are heavier. Steel scrap is being stocked by local mills, prices being unchanged at $10 and $11 gross. New bids for 3500 tons offered by the Alaska railroad will be opened next month. The army transport Thomas has been sold to scrappers at San Francisco for $63,000. One large shipping firm is experimenting at San Francisco in breaking up steel sailing ships and shipping the material to Japan with the idea that this method may be cheaper than sending the vessels across the Pacific.

Demands Holding Well

San Francisco, May 25.—(*By Air Mail*)—Demand continues well sustained and a number of new projects have come up recently. Pasadena, Calif., will hold a bond election June 18 to vote on bonds in the amount of $10,000,000 for the construction of a dam across the San Gabriel river calling for 9000 tons of plates for a pipe line and over 1250 tons of reinforcing bars and structural shapes. Prices, generally, are well maintained.

Pig Iron and Coke

While some improvement in the rate of operations among foundries is reported inquiries and sales were confined to small tonnages. Quotations are unchanged.

Bars, Plates and Shapes

A fair tonnage of reinforcing steel bars was placed this week, exceeding 1700 tons, corresponding period in 1928. Gunn, Carle & Co. booked 455 tons for a warehouse in Oakland and the Soule Steel Co. took 600 tons for an office building in San Francisco. Business pending calls for more than 6000 tons. Out-of-stock prices in San Francisco remain unchanged at 2.20c, base, for lots of 250 tons or more, 2.30c for carload business and 2.60c for less than carload lots. In Los Angeles, prices have strengthened and 2.30c applies on 250 ton lots, 2.40c on carload business and 2.70c on lesser lots.

While plate awards were not heavy this week, pending business calls for a fair sized tonnage. The largest letting involved 575 tons for a 24-inch electrically welded pipe line for Los Angeles, taken by the Western Pipe & Steel Co. Walla Walla, Wash., will open bids next week on from 190 to 230 tons for 20 or 24-inch riveted or cast iron pipe. The Western Pipe & Steel Co. was low bidder on 195 tons for a 24-inch pipe line for Los Angeles. Prices remain fairly firm at 2.35c c.i.f.

Structural shape awards this week totaled 1107 tons. A power house in Honolulu, requiring 450 tons, went to Moore Drydock Co., Oakland. Pending business exceeds 20,000 tons. Bids are being taken on two office buildings in Los Angeles requiring 5000 tons. Plain structural material is firm at 2.35c c.i.f.

Other Finished Material

Southern Pacific Co., San Francisco, has just awarded 21 gas and electric cars. The Pullman Co. took 12 of them, J. G. Brill Co. seven and the Standard Steel Car Co., two.

Awards of cast iron pipe this week were small and totaled but less than 600 tons. The largest lot involved 480 tons for Southgate, Calif. Long Beach, Calif., will open bids May 28 for 2398 tons and Walla Walla, Wash., will open bids May 29 for 963 to 1283 tons of cast iron pipe or riveted steel pipe. Pending business totals more than 7000 tons. Los Angeles opened bids on 195 tons of 24-inch lapweld or electric welded steel pipe this week, plate fabricators submitting the lowest bid. Approximately 2350 tons, 20.649 miles, of 12¾-inch O. D. gas pipe will be installed by the Northwestern Utilities Co., Edmonton, Wash., for a pipe line between Viking and Holden.

The Chicago group of the American Institute of Steel Construction will hold a special meeting at the Union League club, Chicago, June 3.

Metals Tariff Rates Unchanged as House Revamps Act of 1922

WASHINGTON, May 28.—After exactly three weeks of consideration of the bill revising the tariff act of 1922, the house of representatives late this afternoon passed the bill by a comfortable margin.

In a few days the bill will formally go to the senate, where it will be referred to the senate finance committee for further hearings. Senator Smoot, of Utah, chairman of the committee, has announced his intention of expediting action.

With the exception of changes enumerated below, the bill as it passed the house stands as printed in IRON TRADE REVIEW of May 16. A last minute effort of domestic managanese ore producers to have metallic content at which the 1-cent per pound rate is effective lowered from 30 per cent to 10 per cent was unsuccessful.

Changes proposed in the bill by the house ways and means committee prior to the conference of the Republican majority, when it was decided 206 to 24 to consider only committee amendments on the floor of the house and to bring the bill to a vote late today, affect only a few sections of the metals schedule. These changes were adopted.

Paragraph 352 was revised to read as follows:

Par. 352. Twist and other drill bits, reamers, milling cutters, taps, dies, die heads and metal cutting tools of all descriptions, for edges or parts for use in such tools, composed of steel or substitutes for steel, all the foregoing not specially provided for, 50 per centum ad valorem; if containing more than one-tenth of 1 per cent of vanadium, or more than two-tenths of 1 per cent of tungsten, molybdenum or chromium, 60 per centum ad valorem. The foregoing rates shall apply whether or not the articles are imported separately or as parts of or attached to machines.

Paragraph 354, relating to penknives and knives of various descriptions, was amended by increasing the rate on those valued at not more than 40 cents per dozen from 1 cent and 50 per cent ad valorem to 2 cents and 50 per cent.

Paragraph 372, relating to machinery and tools, was augmented by machines for knitting full fashioned hosiery 45 per cent ad valorem. The rate for all other textile machinery not otherwise provided for was increased from 35 per cent to 40 per cent.

A paragraph was inserted in the metals schedule providing for a duty of 40 per cent on "autoclaves, catalyst, chambers, scrubbers, separators, shells, stills, ovens, soakers, penstock pipes, cylinders, containers, drums and vessels. Any of the foregoing (not provided for in paragraph 327) composed wholly or in chief value of iron or steel, by whatever process made, wholly or partly manufactured, if over 20 inches in diameter, and having metal walls 1¼ inches or more in thickness, and parts of any of the foregoing."

In a speech on the floor of the house, advocating a duty of 1½ cents per pound on manganese ore instead of 1 cent, Representative William Williamson, of South Dakota, declared, "I understand that representatives of the United States Steel Corp. have said privately that they were not opposed to the proposed increase."

Wheeling Steel Corp., Wheeling, W. Va., in protesting against the transfer of palm oil from the free list to schedule No. 1, where under the revision it is dutiable at 1 cent per pound, pointed out that the bulk of the burden will be borne by the tin plate industry.

Eighty-three per cent of the tin plate manufactured in the United States is used for the packing of agricultural products. Nearly all the remaining 17 per cent is bought by the farmer and his wife, the corporation contends.

In 1928, according to the corporation, the United States produced 1,763,857 gross tons of tin and terne plate. This corresponds to 42,000,000 base boxes and as the industry utilizes about 0.6 of a pound of palm oil per base box, it consumes yearly about 25,200,000 pounds of oil. At present palm oil is about 8.6 per pound, and the new duty is 1 cent per pound.

In the attached table is given the distribution of tin plate for various uses, as submitted to the house ways and means committee by the Wheeling Steel Corp.

Where Tin Plate Goes

PRODUCTS	Per cent
Vegetables and fruit	26.3
Milk, condensed or evaporated	15.6
Fish	6.6
Meat	5.4
Sirups and molasses	4.2
Butter, lard and compounds	2.9
Baked beans	2.7
Soups	1.8
Baking powder	1.7
Crackers	1.5
Coffee, tea and substitutes	1.4
Miscellaneous food, including fresh oysters and fresh crabmeat	1.0
Cocoa and spice	1.0
Kraut	1.0
Oils (olive, salad, cooking)	0.8
Hominy	0.4
Tomato pulp (5 gallons)	0.4
Candy	0.2
Spaghetti and macaroni	0.1
TOTAL	75.0
USED IN CONNECTION WITH FOOD OR FOOD CONTAINERS	
Bottles and jar caps	2.1
Cooking utensils	1.7
TOTAL	3.8
FOR CONTAINERS FOR PRODUCTS OTHER THAN EDIBLES	
Oil and grease	8.4
Tobacco, cigars, cigarets and snuff	4.8
Paint and varnish	1.9
Pharmaceutical drugs	1.2
Polish (stove, shoe and metal)	0.8
Typewriter ribbons	0.1
Toilet articles (talcum, etc.)	0.6
TOTAL	17.8
MISCELLANEOUS USES	
War munitions, including case linings, fuse boxes, shrapnel cases; Stove board; Furnace pipe; Gas meters	1.0
TOTAL	1.0
UNCLASSIFIED	
Casket; Metal stamps	2.4
GRAND TOTAL	100.0

Pig Iron

(*Continued from Page* 1485)

pressure pipe is to be increased. Prices are steady.

The Central of Georgia railroad has proposed reductions on pig iron rates from Birmingham group points and other producing points in Alabama, via the Savannah & Ocean Steamship Co. to Baltimore, Philadelphia, New York and Boston, ranging from 76 cents a ton in the Baltimore rate to $1.16 in the Boston rate. Every effort is being made to publish the reduced rates to be effective by July 1 in time to apply on third quarter contracts. This action was taken to relieve the present surplus of iron on yards and to enable producers to compete with iron now being imported through North Atlantic ports. The present rate to Baltimore is $5.76. The new rate is to be $5. To Philadelphia it has been $6.01, and will be $5.25; to New York, $6.37 present, $5.50, new; Boston, present rate, $6.91, new rate $5.75.

Toronto, Ont., May 28.—Pig iron demand is confined to small tonnages for spot delivery. Sanitary ware manufacturers recently placed orders for lots ranging from 300 to 500 tons. The movement of iron has been speeded up since the opening of navigation. Shipments on contracts are heavy. Inquiry is good for third quarter. Prices are firm.

Youngstown, O., May 28.—Valley pig iron producers are receiving numerous fill-in orders. Considerable third quarter inquiry is out. Basic pig iron output for third quarter is practically all sold. Prices are firm.

Philadelphia, May 28.—Baldwin locomotive Works is inquiring for 1000 to 1500 tons of floor grade foundry iron, delivery to start in June. The

last purchase of 1800 tons of the cylinder grade made by the same consumer went to a furnace in the Birmingham district about six weeks ago. Sales of Birmingham iron in this district recently have been principally on the basis of the new freight rate of $3.50 by rail to Norfolk, plus 39 cents for loading on barges, plus $1.25 for shipment to Delaware river points, or a total cost of $5.14. This rate becomes effective June 15, and is $1.12 lower than the present combination rail and water rate via Norfolk. The new rate offers advantages only to consumers on the Delaware river large enough to take full barge load of 1000 tons. It does not offer any noticeable advantages on barge shipments which must be unloaded at Philadelphia and shipped by rail to destination. Brooklyn navy yard is inquiring for 160 tons of low phosphorus iron.

Studies Base Prices on Iron and Steel

Washington, May 28.—In connection with the base price investigation which has been under way for several years by the federal trade commission, base prices on iron and steel products have been studied in territory adjacent to both Birmingham and Chicago, it has just become known.

Owing to the fact this investigation is far from completed, officials of the commission refuse to discuss the matter, but it has been said that base price investigations relative to bolts, nuts, rivets, wire nails and similar products have been made.

It was stated at the commission, by one in authority, that this survey is in no sense to check up on the results of the order issued by the commission in the Pittsburgh-plus case. The work as to iron and steel products, it was stated, is in no more nor less detail than that in connection with a half dozen other industries being made for this inquiry. It is expected that no report will be ready on this survey for a long time. It was initiated on the commission's own motion.

Give Out Wickwire Plan

The Wickwire-Spencer Steel Co., which operates plants in Worcester, Spencer, Clinton and Palmer, Mass., and Buffalo, will be taken over by a new company, according to a plan of the reorganization committee which will make a formal report soon. The plan as announced proposes to settle for $1,000,000 the claim of $1,500,000 based on the agreement to purchase from the late Harry W. Goddard, through the Spencer Wire Co., the Goddard Works plant in Worcester. Other indebtedness to be paid in full includes $1,118,300 of first mortgage bonds of the American Wire Fabrics Co. outstanding April 30, 1929, at 107.

Trade Association Merit To Be Rewarded

The American Trade Association Executives have established an annual award for outstanding achievements and service by a trade association for its industry. The purpose of the award, which will be a bronze medallion cast in appropriate design and suitably engraved, is to foster and promote service to American industry through the medium of the trade association, to arouse an appreciation of industry in the public in the trade association movement in America, and to inspire trade association executives with higher standards. A committee of present and past presidents of the American Trade Association Executives will make the award. The first award is to be made in May, 1930, for the calendar year 1929.

Furniture Orders Lower

Washington, May 28.—April orders and shipments of steel furniture were lower in April than any of the preceding months this year, according to the department of commerce. Monthly comparisons follow:

	Business Group		Shelving	
	Orders received	Shipments	Orders received	Shipments
	(In Dollars)			
1927				
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999
March	3,283,329	3,169,351	841,098	813,607
April	2,915,344	3,065,637	740,658	716,104
May	3,085,638	3,213,291	732,921	768,988
June	2,764,085	3,009,229	727,060	720,253
July	2,594,216	2,515,482	713,330	722,516
Aug.	2,619,234	2,564,638	863,422	836,105
Sept.	2,689,009	2,754,135	799,850	678,422
Oct.	3,192,927	3,158,998	958,726	953,804
Nov.	2,675,664	2,854,312	875,354	915,640
Dec.	3,610,645	3,117,139	828,555	791,376
Total	35,974,117	35,043,412	9,601,032	9,297,078
1929				
Jan.	3,892,651	3,614,961	1,099,575	901,970
Feb.	3,060,290	3,242,581	919,557	974,305
March	2,883,716	2,923,363	1,145,632	1,109,876
April	2,088,651	2,844,938	1,085,329	1,131,362

*Revised.

Plans American Company

Pittsburgh, May 28.—The Austin Motor Co. Ltd. of England, through an American company to be formed, will build automobiles at the plant formerly occupied by the Standard company at Butler, Pa., it is understood. It is reported that the company expects to make a stock offering, half to be sold in the United States and the balance abroad.

American Foundry Party Entertained Abroad

London, May 28.—(*By Cable*)—The American Foundrymen's association party now touring the most important industrial and foundry centers in Great Britain prior to attending the third International Foundrymen's congress, June 11-15, in London, spent Monday sightseeing in the Leamington district. Here Stratford-on-Avon, the birthplace of Shakespeare, Warwick castle and Kenilworth castle were visited.

Today was spent visiting foundries in Birmingham and Coventry. A municipal reception and lunch was tendered the party at noon by the Lord Mayor of Birmingham. S. M. Utley, past president of the American Foundrymen's association, voiced the appreciation of the party. At a dinner in Coventry in the evening, another reception was arranged by the Lord Mayor. H. Cole Estep, chairman of the American association's committee on international relations, replied on this occasion.

Ohio Tube Earnings Up

Net earnings of the Ohio Seamless Tube Co., Shelby, O., for the first four months of 1929 were in excess of $300,000, equivalent to $3.41 per share on common stock. This compares with $160,000, or $1.62 a share in the corresponding period of 1928. Deliveries of the company are from 8 to 12 weeks behind orders. The company is operating at full capacity and indications are that production and profits for the first half of this year will establish a new peace time record, according to President A. C. Morse.

Steel Common at $165

New York, May 28.—United States Steel Corp. will offer its common stock this year to employes, not to exceed a total of 100,000 shares, at $165 per share.

Meeting Date Announced

Dates selected for the national diesel engine meeting at Pennsylvania State college, State College, Pa., are June 24-27. A large technical program has been arranged.

Philip I. Heuisler, president, Maryland Glass Corp., addressed the Engineers club, Baltimore, at its headquarters at 6 West Fayette street, Baltimore, May 22, on "Co-operation in Industry."

Exports Gaining Heavily Over 1928

Foreign Trade Balance in Iron and Steel Improves—Scrap Shipments Largest in April—Shapes from Germany Lead Imports

EXPORTS of iron and steel products from the United States during April, at 277,580 gross tons, reached the highest level of the current year and for the second consecutive month returned an increase in total shipments. Imports likewise increased, but the 54,337-ton total recorded was rather materially less than that for January and February, states the iron and steel division, department of commerce.

IMPORTS AND EXPORTS

Gross Tons

	—1929—		—1928—	
	Imports	Exports	Imports	Exports
Jan.	54,793	274,296	58,635	205,766
Feb.	58,146	259,711	48,756	185,907
March	52,622	270,925	74,128	221,935
April	54,337	277,580	71,579	215,184
4 mos.	219,898	1,082,512	252,107	828,792
May	.....	.....	72,106	267,890
June	.....	.....	65,819	262,052
July	.....	.....	47,830	253,336
Aug.	.....	.....	69,914	287,297
Sept.	.....	.....	57,782	228,056
Oct.	.....	.....	63,880	256,870
Nov.	.....	.....	67,103	256,886
Dec.	.....	.....	55,199	221,810
Total	.....	.....	782,694	2,862,997

The increased export trade, which represented a gain of 6655 tons over the previous month's performance, also was reflected in the daily export movement, setting a daily figure of 9253 tons for April against 8740 tons for March and 9275 tons for the 28-day month of February. The daily import movement was also increased, to 1811 tons from 1702 tons, but still was well below the February average of 2077 tons.

A most satisfactory picture is presented by the cumulative trades of the current year. Exports, totaling 1,082,512 tons, are 253,807 tons greater than at this same time last year, while imports, at 219,898 tons, are 35,070 tons less than those of a year ago.

Despite the fact that the total exportation of iron and steel products during April exceeded that of March by 6655 tons, 31 of the 42 classes of products showed decreased shipments by this same comparison. The bulk of these, however, were small in amount so that the several substantial increases shown more than offset the numerous though small decreases. Chief among the increases were those which took place in rails, 10,092 tons; scrap, 6559 tons; skelp, 4945 tons; pig iron, 354 tons, and plates, 2891 tons, while among the instances of decreased shipments there were those in plain shapes, 3895 tons; casing and oil line pipe, 2872 tons; black and galvanized welded pipe, 2213 tons, and black steel sheets, 1961 tons.

In point of tonnage the principal commodity exported during April was scrap, the bulk of this trade being with Canada, Japan, and Poland in the order named. Tin plate was the second product exported, finding its best

ORIGIN OF IRON ORE IMPORTS

Gross Tons

From	April	March
Sweden	33,485	25,815
Chile	140,600	117,470
Cuba	55,500	55,000
Algeria and Tunis	30,620	3,460
Egypt	14,300	7,400
Greece	5,350	.....
Australia	4,279	.....
Mexico	.....	21,457
Canada	.....	40
Spain	.....	20
Brazil	.....	9,450
British India	.....	4,000
United Kingdom	.....	50
Venezuela	.....	1
Total	284,134	244,163

ORIGIN OF MANGANESE IMPORTS

Gross Tons

From	April	March
Soviet Russia in Europe	16,583	7,410
Brazil	8,468	63
British India	5,514	7,682
United Kingdom	12	.....
Gold Coast	.....	2,801
Canada	.....	133
Total	30,577	18,089

ORIGIN OF FERROMANGANESE IMPORTS

Gross Tons

From	April	March
Canada	2,987	2,919
Norway	2,823	910
United Kingdom	1,315	2,071
Italy	229	187
Sweden	18	.....
France	.....	8
Total	7,372	6,095

ORIGIN OF PIG IRON IMPORTS

Gross Tons

From	April	March
United Kingdom	3,000	4,700
British India	1,826	1,107
Netherlands	1,053	2,465
Norway	391	156
Sweden	265	111
Canada	127	.....
Mexico	31	33
Total	6,693	8,572

ORIGIN OF IMPORTS

Gross Tons

From	Ingots, blooms, etc.	Steel scrap	Cast iron pipe	Steel bars
Belgium	1,081	.....	31	1,204
France	1,070	50	1,746	161
Germany	103	73	.....	707
United Kingdom	11	398	.....	112
Sweden	340	196	.....	1,197
Canada	5	6,650	1	4
Italy	.....	81	.....	.....
Cuba	.....	61	.....	.....
Virgin Islands	.....	75	.....	.....
Austria	.....	.....	.....	23
Norway	.....	.....	.....	3
Czecho-Slovakia	.....	.....	.....	26
Total	2,610	7,584	1,778	3,437

IMPORTS OF IRON AND STEEL

In Gross Tons

Item	April 1929	March 1929	January thru April 1929	January thru April 1928
Pig iron	6,693	8,572	47,672	53,764
Ferromanganese and alloys (1)	7,372	6,095	22,294	13,441
Ferrosilicon (2)	636	967	2,843	1,212
Ferrochrome (3)	20	36	99	224
Scrap	7,584	6,463	29,778	11,168
Steel ingots, blooms, billets, etc.	2,610	1,681	7,849	6,104
Steel bars	3,437	1,868	11,190	34,895
Iron bars	299	216	1,089	815
Wire rods	1,339	1,365	4,482	6,474
Hoops, bands, and scrolls	2,664	1,012	6,394	10,814
Boiler and other plate	1,220	....	2,275	460
Sheets, skelp and sawplate	1,068	2,147	4,965	9,482
Tin plate	3	31	92	166
Structural shapes	12,300	11,302	42,089	58,394
Rails and splice bars	13	157	984	5,501
Cast iron pipe	1,778	4,502	12,688	19,842
Other pipe and tubes	2,565	3,823	13,854	14,157
Barbed wire	742	617	1,993	1,258
Round iron and steel wire	778	584	2,504	1,449
Steel telegraph and telephone wire	....	....	....	36
Flat wire and strip steel	160	119	595	741
Wire rope and strand	193	323	802	498
Other wire	47	61	187	231
Nails, tacks, and staples	549	547	2,362	2,334
Bolts, nuts, rivets, and washers	26	26	93	87
Castings and forgings	241	148	765	1,461
Total	54,337	52,662	219,938	255,008

(1) Manganese Content. (2) Silicon content. (3) Chromium content.

IMPORTS BY COUNTRIES OF ORIGIN

Gross Tons

	April, 1929
Austria	24
Belgium	10,015
Czechoslovakia	30
France	5,744
Germany	11,031
Italy	310
Netherlands	1,261
Norway	3,217
Sweden	3,483
Switzerland	19
United Kingdom	5,981
Canada	11,226
Mexico	31
Cuba	61
Virgin Islands	75
British India	1,826
Japan	3
Total	54,337

markets in China, Japan, and Canada, while the steel bars exported were sent principally to Canada and Japan. Steel rails made up the fourth largest item of this trade, large shipments going forward to Cuba, Chile, Canada, Philippine islands and Japan.

Plain shapes went largely to Canada as did the bulk of the plates. Black steel sheets were in greatest demand in Canada, Japan and Argentina, while galvanized sheets found their best markets in Canada, Philippine islands, Mexico and Brazil. Exports of black and galvanized welded pipe were principally shipped to Japan, United Kingdom and Argentina.

Fifty-two and one-tenth per cent of the April exports went to countries in North and Central America and the West Indies, a figure which compares with 48.5 per cent for the elapsed four months of 1929.

EXPORTS OF IRON AND STEEL
In Gross Tons

Item	April 1929	March 1929	January thru April 1929	January thru April 1928
Pig iron, not including ferro-alloys	7,631	4,083	19,601	15,954
Ferromanganese and spiegeleisen	86	525	821	3,463
Scrap	42,621	36,062	150,988	126,580
Ingots, blooms, etc	6,441	5,031	14,148	8,158
Skelp, iron and steel	11,377	6,432	24,877	24,751
Iron bars	514	1,080	2,242	1,405
Steel bars	22,032	23,823	85,651	43,226
Alloy steel bars	1,501	3,107	9,495	4,339
Wire rods	4,551	4,588	17,089	10,160
Plates	18,006	15,115	69,471	44,034
Galvanized sheets	14,404	13,978	62,474	50,460
Black steel sheets	14,615	16,576	63,305	55,816
Black iron sheets	1,117	1,351	4,646	4,673
Hoops, bands and strip steel	8,059	8,660	30,350	16,595
Tin plate, terneplate, etc	25,991	24,478	103,543	80,361
Structural shapes, plain material	20,790	24,685	84,267	52,019
Structural shapes, fabricated	7,157	8,067	40,656	23,639
Metal lath	476	419	2,029	1,488
Steel rails	21,369	11,277	67,678	78,390
Rail fastenings, switches, frogs, etc	3,408	2,686	11,506	22,939
Boiler tubes	1,565	1,754	6,661	5,697
Casing and oil line pipe	9,479	12,351	57,151	34,106
Black and galvanized welded pipe	11,616	13,829	47,885	34,483
Malleable iron screwed pipe fittings	1,151	1,068	4,447	2,800
Cast iron screwed pipe fittings	793	1,590	3,885	1,883
Cast iron pressure pipe and fittings	758	1,142	3,387	4,775
Cast iron soil pipe and fittings	919	1,070	3,677	4,156
Plain wire	4,146	5,341	18,830	15,207
Barbed wire and woven wire fencing	5,137	6,576	23,884	24,270
Wire cloth and screening	116	151	620	561
Wire rope	586	749	2,679	1,746
Insulated wire and cable	48	157	434	188
Other wire and manufactures of	785	1,003	3,813	2,810
Wire nails	1,355	2,051	6,493	5,477
Nails other than wire	1,069	1,080	3,656	3,096
Tacks	54	72	228	299
Horseshoes	6	77	130	142
Bolts, nuts, rivets, except track	1,281	1,716	5,687	3,992
Car wheels and axles	1,745	3,293	9,435	4,421
Iron castings	1,267	1,372	5,090	4,600
Steel castings	531	735	4,049	3,248
Forgings	1,027	1,725	5,554	2,298
Total	277,580	270,925	1,082,512	828,705

DESTINATION OF APRIL IRON AND STEEL EXPORTS
Gross Tons

	Rails	Galvanized sheets	Plate not fab.	Tin, terne plate	Black sheets	Barbed wire	Steel bars	Steel scrap
Argentina	.....	412	63	542	.....	115	.....	.....
Australia	.....	53	69	.....	67	.....	168	.....
Belgium	104	.....	.....	.....	.....	.....	.....	237
Brazil	110	1,321	.....	646	.....	1,798	652	.....
British India	.....	152	.....	.....	.....	.....	.....	.....
British Malaya	.....	.....	.....	406	.....	.....	.....	.....
British S. Africa	.....	11	.....	.....	.....	125	.....	.....
Canada	3,850	3,248	14,619	4,504	8,817	165	9,499	12,981
Central America	213	642	29	.....	108	250	571	.....
Chile	5,797	.....	150	521	.....	.....	.....	.....
China	12	205	558	7,228	.....	.....	61	989
Colombia	691	468	2	20	.....	140	.....	.....
Cuba	4,200	361	73	455	.....	395	706	.....
Denmark	.....	.....	.....	110	.....	.....	.....	.....
Dutch E. Indies	.....	749	.....	.....	.....	.....	.....	.....
Dutch W. Indies	.....	.....	.....	54	.....	.....	.....	.....
Europe	.....	.....	.....	.....	299	.....	99	.....
Other Europe	.....	921	.....	76	.....	.....	.....	.....
Germany	.....	.....	.....	.....	.....	.....	.....	1,658
Hong Kong	.....	.....	.....	.....	.....	.....	.....	5
Italy	.....	.....	.....	1,236	.....	.....	.....	5,631
Japan	2,023	214	396	6,782	2,646	.....	5,630	12,486
Java and Madura	.....	.....	.....	639	.....	.....	.....	.....
Kwantung	.....	.....	186	.....	.....	.....	.....	.....
Mexico	65	.....	15	683	307	528	176	26
Norway	.....	92	.....	.....	.....	.....	.....	.....
Peru	243	1,602	40	406	5	.....	714	.....
Philippine Islands	2,425	2,358	627	726	727	647	939	.....
Poland	.....	.....	.....	.....	.....	.....	.....	8,490
Salvador	.....	.....	.....	.....	.....	.....	.....	2
United Kingdom	.....	.....	.....	.....	89	.....	1,636	116
Venezuela	200	.....	.....	22	.....	.....	.....	.....
Total	21,369	14,404	16,976	25,991	14,615	4,706	22,032	42,621

DESTINATION OF EXPORTS
In gross tons

	April 1929	January through April 1929	January through April 1928
North and Central America and the West Indies	144,852	524,372	392,762
Canada and Newfoundland	120,758	423,999	316,949
Cuba	8,679	26,697	21,647
Guatemala	970	3,020	4,857
Honduras	665	5,355	3,106
Mexico	7,267	28,339	24,394
Panama	1,343	8,011	6,138
Salvador	1,280	3,795	866
British West Indies	1,156	10,252	2,455
Other West Indies	1,954	11,259	9,588
Other Cent. America	780	3,645	2,762
South America	33,429	166,874	143,742
Argentina	5,704	39,667	30,604
Brazil	7,267	24,513	30,837
Chile	8,552	26,032	26,253
Colombia	3,192	19,653	23,674
Peru	2,408	14,478	10,046
Uruguay	322	4,779	3,064
Venezuela	5,489	35,861	17,124
Other South America	495	1,891	2,140
Europe	27,388	118,974	63,569
Belgium	435	1,555	5,025
France	428	7,507	1,409
Germany	1,894	7,546	6,239
Italy	8,770	40,992	10,461
Netherlands	275	1,153	888
Poland and Danzig	8,496	29,281	14,611
Rumania	457	1,391	1,002
Soviet Russia in Europe	461	1,865	1,360
United Kingdom	4,370	20,261	16,599
Other Europe	1,802	7,423	5,975
Far East	71,158	265,240	223,685
British Malaya	735	3,806	2,652
China	10,594	33,443	43,964
Netherlands E. Indies	5,390	31,754	9,272
India and Ceylon	576	7,997	10,869
Japan	39,285	129,523	113,178
Kwantung	693	7,144	1,914
Philippine Islands	10,365	36,942	33,608
Australia	1,484	7,120	5,343
New Zealand	697	1,865	850
Other Asia and Far Eastern Markets	1,339	5,646	2,035
Africa	753	7,052	4,947
Union of So. Africa	411	2,347	2,420
Egypt	74	3,562	1,580
Mozambique	125	380	308
Other Africa	143	763	639

Exports of Metalworking Machinery

(In number except where otherwise specified)

	April 1929	April 1928	January through April 1929	January through April 1928
Engine lathes	98	39	328	269
Turret lathes	49	41	223	126
Other lathes	83	125	302	267
Vertical boring mills and chucking machines	8	8	97	34
Thread-cutting and automatic screw machines	75	64	322	294
Knee and column type milling machines	43	19	174	106
Other milling machines	50	42	269	221
Gear-cutting machines	44	30	165	111
Vertical drilling machines	28	60	152	195
Radial drilling machines	4	8	40	55
Other drilling machines	187	72	681	251
Planers and shapers	35	46	180	159
Surface grinding machines	12	.....	40	.....
External cylindrical grinding machines	54	59	318	309
Internal grinding machines	31	27	162	144
Tool grinding, cutter grinding and universal grinding machines	290	46	579	184
Pneumatic portable tools	2,147	2,462	8,443	7,446
Chucks for machine tools	1,234	1,142	6,641	3,781

Industrial Men in the Day's News

Ivy L. Lee, Counselor in Public Relations

BY DIRECTED publicity he fosters favorable relations between the public and labor on the one hand and large industrial corporations on the other.

REPORTORIAL work on New York daily newspapers sharpened his nose for news and aroused his bent for specialized writing and publicity.

SOME of the largest corporations, including the Bethlehem Steel Co. and Pennsylvania railroad, are his clients. At his own expense he frequently seeks to further industrial and world amity.

LONG recognized as a leading figure in fostering favorable relations between the public and labor on the one hand and large business and industrial corporations on the other, Ivy L. Lee's services have been outstanding in their character. His profession is that of counselor in public relations. Mr. Lee generally is regarded as having had as great an influence as any single individual in enabling large industrial groups to become conscious of the importance of deserving favorable public opinion.

Mr. Lee is a native of Cedartown, Ga. He received his primary education in schools there and elsewhere and then attended Princeton university, where he was graduated in 1898 with a bachelor of arts degree. After leaving college he worked as a newspaper reporter, successively on the *New York American, New York Times* and the *New York World.* He left the latter paper in 1903 because he believed he could find greater opportunities in specialized writing.

The day Mr. Lee left the *World* he was walking down Broadway when he met a lawyer friend of his who was an active worker in the Citizens' Union, then grooming Seth Low for mayor of New York. The outcome of this meeting was Mr. Lee's appointment as publicity manager for the Citizens' Union and Seth Low was elected mayor. It was during that campaign that Mr. Lee discovered publicity work was entirely to his liking.

Up to that time it had been the custom in connection with publicity generally to follow surreptitious methods, so that nobody had an opportunity to judge of the real motives back of it. Mr. Lee at once adopted a principle from which he has never deviated.

"When I started out as counselor in public relations, back in 1905," says Mr. Lee, "I religiously followed the policy of placing all publicity over the signature of the company or individual who wanted and paid for the publicity. There never has been any deviation from this policy. It always has been my opinion that anybody having anything to say is entitled to say it, provided it is done openly, and so that people know who is speaking. The result has been what I term responsible publicity."

Mr. Lee has between 25 and 30 clients, and the records of some of the best known of the companies with which he is associated reflect a general policy of frankness and friendliness toward the public, and equable relations with labor—now known as "business morality."

For 22 years Mr. Lee has had charge of all advertising and publicity of the Pennsylvania railroad. Each Monday he attends the meetings of General Atterbury and his staff in Philadelphia and at these meetings all executive details are gone over, and Mr. Lee's voice as counselor in public relations thus is always heard at the executive meetings of this road. One interesting outgrowth of the railroad's recognition of its various responsibilities and opportunities is the creation of a New Ideas bureau to which employes are invited to submit all new ideas that occur to them. Employes are compensated for ideas that prove of value.

For many years Mr. Lee has served as counselor in

publicity for the Rockefellers and their associates. He participated in discussions at the time of the strike in the coal mines of the Colorado Fuel & Iron Co. in 1914. As a result, John D. Rockefeller Jr. went to Colorado and personally investigated the strike and its causes. As a result of the visit of Mr. Rockefeller, the latter organized the plan of employe representation which since has been functioning among the company's coal miners and which was extended to the organization of employes in the company's steel mills.

One of Mr. Lee's important clients is the Bethlehem Steel Co. He has been working with Chairman Charles M. Schwab and President E. G. Grace in his capacity of counselor in public relations since 1916. During that time he has been influential in connection with formulating the Bethlehem company's policy of dealing with the public and with its employes. For instance, during this time, the employes' representation system now in successful operation at all plants of the Bethlehem company was established.

Mr. Lee believes labor must be treated with justice and that the dignity of labor must be recognized. He believes the ideal relation between employers and employes still remains to be worked out, but in the meantime, a policy of fairness and dignity is essential on the part of both to give best results as the ideal is developed.

He is of the belief that his business connections have no bearing on his own personal opinions or activities. For instance, he went to Russia several years ago and on his return wrote a book which set forth a constructive attitude toward the Russian situation. This called forth considerable criticism in many quarters including men with whom he is associated.

Mr. Lee says he frequently gives publicity, on his own responsibility entirely, to utterances which he believes are of value in fostering friendly relations between the United States and Great Britain. Last year Minister Stanley Baldwin of England made speeches on Anglo-American relations which impressed Mr. Lee very favorably. He had them reprinted at his own expense and had them distributed in order to help foster Anglo-American friendship.

Mr. Lee resides in New York and has his office at 15 Broad street, that city. He is a member of the Metropolitan, University, Princeton and Recess clubs of New York and the Rittenhouse club of Philadelphia. He does considerable traveling, mainly in connection with his work.

Men of the Industry

ROBERT E. RUNYON, identified with the general sales department of E. J. Lavino & Co., Philadelphia, since 1925, has been appointed district manager of sales at Pittsburgh. He succeeds Harbour Mitchell, who has been placed in a more responsible position in the general sales office. Mr. Mitchell has been in charge of the Pittsburgh office since 1924 and for a number of years previously was connected with the American Foundry & Construction Co., Pittsburgh. Mr. Runyon formerly served in the sales department of the Struthers Furnace Co., Struthers, O.

* * *

Randall W. Harper and Siegel Judd have been elected directors of the Sparta Foundry Co., Sparta, Tenn., manufacturer of piston rings.

* * *

Julius Rubiner, vice president of the Ungerleider Financial Corp., has been elected a director of the Muskegon Piston Ring Co., Muskegon, Mich.

* * *

D. G. Carswell, head of the marine department of the Canadian Vickers Ltd. of Montreal, has been appointed general manager. He had for some time been acting in that capacity.

* * *

J. W. Ellet, identified with the purchasing department of the Hupp Motor Car Corp., Detroit, for about 14 years, has been appointed purchasing agent to succeed R. J. Taylor, resigned.

* * *

L. H. Christensen, the Heintz Mfg. Co., Philadelphia, has been elected chairman of the committee of meetings and papers of the Philadelphia section of the American Welding society.

* * *

Floyd Jones, sales manager of the equipment division of the Biflex Products Co., Waukegan, Ill., for five years, has resigned to become sales manager for the Owen-Dyneto Corp., Syracuse, N. Y. His headquarters will be in the General Motors building, Detroit.

* * *

Harry A. Kraeling has been elected president of the Standard Steel Propeller Corp., Pittsburgh. Other officers follow: Vice presidents, John M. Haverty and Howard S. Evans; treasurer, Thomas J. Ingram, and secretary, John M. Haverty.

* * *

R. L. Daugherty, a vice president of the American Society of Mechanical Engineers, and who has been chairman of the Los Angeles section of the society, recently was elected chairman of the board of directors of Pasadena, Calif.

* * *

J. Edward Roney was elected assistant secretary and treasurer of the Detroit Gray Iron Foundry Co., Detroit, and William C. Roney, president of William C. Roney & Co., Detroit investment banking house, and Galen Van Meter, of E. W. Clucas & Co., were made directors of the company.

* * *

George H. Houston, president of the Baldwin Locomotive Works, Philadelphia, was elected president of the Standard Steel Works, subsidiary of the Baldwin corporation. He succeeds Samuel M. Vauclain, who was made chairman. Mr. Houston also was elected a director of the Standard Steel Works and John P. Sykes was named vice president.

* * *

Edwin H. Peirce, formerly vice president and general manager of the Niles Tool Works Co., Hamilton, O., has been made vice president and general manager of the Atwood Machine Co., Stonington, Conn., manufacturer of silk and rayon throwing machinery. Previous to his identification with the Niles company, Mr. Peirce for many years was with the United States Steel Corp. as superintendent of the New Haven, Conn., works and as superintendent of the South works, Worcester, Mass., of the American Steel & Wire Co. Mr. Peirce is a director of the Atwood Machine Co., and the Niles-Bement-Pond Co.

* * *

Sidney C. Myers, of San Francisco, for many years representative of the

Chrome Steel Works, Chrome and Carteret, N. J., has been appointed western representative of the Chrome Steel Corp., the new style name for the Canda Gayley Steel Corp., recently incorporated to take over the business of the Chrome Steel Works.

* * *

F. L. Lindemuth, formerly chief engineer for the Tata Iron & Steel Co. of India, has joined the engineering staff of the Mesta Machine Co., Pittsburgh.

* * *

Harry Loeb, manager of sales at New York for the Lukens Steel Co., has been elected president of the Master Boiler Makers Supply Men's association.

* * *

Francis C. Frary, director of research, aluminum Co. of America, Pittsburgh, was elected president of the American Electrochemical society at its recent annual meeting held at Toronto, Ont.

* * *

G. H. Schultz, assistant purchasing agent of the Pennsylvania railroad, Pittsburgh, has been appointed assistant fuel purchasing agent at Philadelphia. Frank J. Fell Jr., comptroller, has been promoted to be a vice president of the company.

* * *

Raymond Willey, who on April 15 was elected vice president of the Harbison-Walker Refractories Co., Pittsburgh, as noted in IRON TRADE REVIEW of April 18, has been identified with the manufacture of refractories since 1902. He served as superintendent at several of the company's plants as well as district superintendent and works manager. In 1916 he became assistant to the vice president.

Kenneth Seaver, since April 15 vice president of Harbison-Walker, is a graduate of Massachusetts Institute of Technology. He entered the company's employ 27 years ago as draftsman. He rose to be chief engineer and later was appointed assistant general sales manager. In December, 1921, he was appointed general sales manager, which office he has held continuously until his election to the vice presidency.

W. B. Coullie, who succeeded Mr. Seaver as general sales manager, entered the Harbison-Walker organization as a clerk in the sales department. Interest in his work won him successive advancements over a period of 21 years. In 1927 he was appointed assistant general sales manager, a post he retained until his recent appointment. He is vice president of the American Refractories institute and holds membership in the American Ceramic society.

G. G. Coolidge, assistant to President J. E. Lewis of Harbison-Walker, was graduated from the scientific school of Yale university with the 1904 class. Soon thereafter he became identified with the Harbison-Walker sales department and until 1913 was one of its Pittsburgh district office representatives, when he was appointed district sales manager for Pittsburgh. In 1923 he became assistant general sales manager.

* * *

Frank Samuel, president of Frank Samuel & Co., Harrison building, Philadelphia, sailed May 24 for a six-week trip to Europe.

* * *

S. N. Comly has been placed in charge of sales in the Pittsburgh district for the Russell, Burdsall & Ward Bolt & Nut Co., of Port Chester, N. Y. Formerly he was in the Chicago office of this company.

* * *

I. W. Macy has been elected president of Macy Conveyors Inc., Decatur, Ind., recently organized, which plans to start operations July 1. He has had a wide experience in the manufacturing and marketing of conveyors. For three years he was manager of the industrial division of the Galion Iron Works, Galion, O., which early this year was acquired by purchase by the Jeffrey Mfg. Co., Columbus, O.

* * *

E. F. Whitney, manager of the Portland, Oreg., office of the General Electric Co., Schenectady, N. Y., since 1923 has been made assistant manager of the Cleveland district office, Union Trust building. Mr. Whitney is a graduate of the Massachusetts Institute of Technology and has won recognition through his work in connection with the electrification of the lumber industry on the Pacific coast. He entered the employ of the General Electric Co. in 1907 and has served in the San Francisco, Seattle and Portland offices.

* * *

James K. Lamoree, resident engineer of the Shenango plant, New Castle, Pa., of the American Sheet & Tin Plate Co., was promoted chief draftsman with headquarters at Pittsburgh, effective May 24. He is a graduate

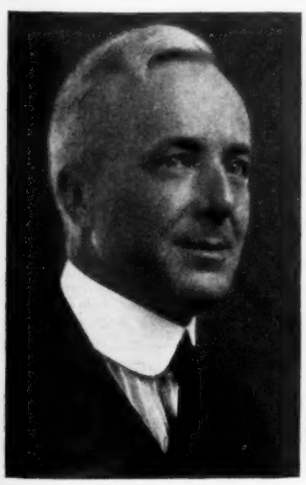
Convention Calendar

June 3-6—National Association of Purchasing Agents. Annual meeting at Hotel Statler, Buffalo. George A. Renard, 11 Park Place, New York, is secretary.

June 11-15—Third International Foundrymen's congress. Royal Agricultural Hall, London. T. Makemson, St. John Street Chambers, Deansgate, Manchester, England, is secretary.

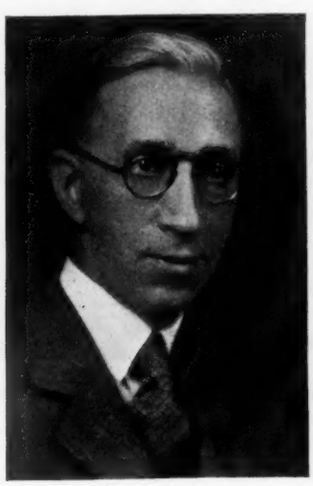
June 24-27—Sheet Steel Executives. Annual conference at Hotel Greenbriar, White Sulphur Springs, W. Va. A. N. Flora, 511 Terminal Tower, Cleveland, is secretary.

June 24-28—American Society for Testing Materials. Thirty-second annual meeting at Chalfonte-Haddon Hall, Atlantic City, N. J. C. L. Warwick, 1315 Spruce street, Philadelphia, is secretary.



RAYMOND WILLEY

KENNETH SEAVER



W. B. COULLIE

G. G. COOLIDGE

of Carnegie Institute of Technology, Pittsburgh. He since has been in the engineering department of the New Castle tin plate mill and for the past 10 years has been resident engineer.

James M. Darbaker, master mechanic, has been appointed to succeed Mr. Lamoree. He has been with the New Castle plant for about four years.

* * *

Douglas R. Coleman, of the Worthington Pump & Machine Corp., New York, has been appointed president of the Mount Hope Bridge Co., Providence, R. I., to succeed his father, the late Charles Philip Coleman.

* * *

Albert Evans, assistant superintendent of the Farrell, Pa., plant of the American Steel & Wire Co., has been made assistant superintendent of both Rankin and Braddock, Pa., to succeed Lyman Miller. William Thompson, master mechanic is now assistant superintendent at Farrell.

* * *

Ralph Lewis Dowdell, until recently assistant professor of metallography at the University of Minnesota, now is affiliated with the bureau of standards, Washington, as head of the department of thermometallurgy. He fills the vacancy caused by the recent resignation of H. J. French to become associated with the International Nickel Co.

* * *

Dr. H. W. Gillett has resigned as chief of the metallurgical division of the bureau of standards, Washington, to become director of the Battelle Memorial institute, Columbus, O., July 1.

* * *

C. J. Steuber, district sales manager at the Milwaukee sales offices and warehouse of the Carborundum Co., Niagara Falls, N. Y., has been appointed district sales manager at Detroit. His headquarters will be in the new Carborundum building, 2759 East Grand boulevard. He succeeds Anthony Dobson, who is retiring from active business. Previous to being district sales manager at Milwaukee, Mr. Steuber was a member of the Detroit sales force, specializing on the sale and servicing of Carborundum brand coated abrasives.

H. E. Kerwin has been appointed district sales manager at Milwaukee to succeed Mr. Steuber. Since 1910 Mr. Kerwin has been a member of the Carborundum Co. sales force at Chicago, and has had long experience in the general abrasive field.

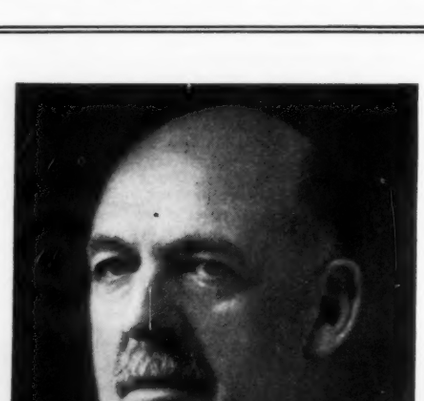
Robert Rainnie, formerly a member of the Carborundum Co. sales engineering staff, will take over Mr. Kerwin's old territory in the Chicago district. Mr. Ronnie has had many years of experience in the abrasive field, particularly in connection with sales servicing and sales engineering.

George Harden has been appointed sales manager for the company in Germany. He will make his headquarters at the Deutsche Carborundum Werke, Dusseldorf. Previous to this appointment, Mr. Harden was a member of the Carborundum Co. sales force in territory comprising Flint, Saginaw, and Bay City, Mich. He has been succeeded there by J. C. Gallen, who previously sold Carborundum Co. products in the Lansing and Ann Arbor, Mich., districts, with headquarters at Detroit. H. S. Monroe has been appointed to take over Mr. Gallen's old territory. Previous to this change Mr. Monroe represented the Carborundum Co. as one of its grinding wheel salesmen in Detroit. His old territory will be taken over by Philip R. Dumas.

Obituaries

HUGH KENNEDY, 72, president of the Seneca Iron & Steel Co., Buffalo, manufacturer of steel sheets, died May 23 at his home in that city. He had been in failing health for several months. He was born at Poland, O., in 1856 where he obtained his schooling. His father owned an iron furnace at Struthers, O., where the son obtained his initial iron experience.

As a young man Mr. Kennedy went to Pittsburgh where, in 1880, he entered the employ of the Carnegie Steel Co. as assistant to the superintendent of the Edgar Thomson steel works. After about five years has was appointed manager of the Isabella furnaces at Etna, Pa. In 1899 he was made manager of the furnace department of the American Steel Hoop Co., and three years later he was elected vice president and general manager of the Rogers-Brown Iron Co., Buffalo. After remaining there for about 22 years, at his suggestion, Alex and James Paterson, iron masters of Youngstown, O., located their sheet mill at Buffalo. It became known as the Seneca Iron & Steel Co., with Mr. Kennedy as president from that new start. Mr. Kennedy was well known among leading iron and steel men. He was a member of the Buffalo, Country and Wanakah Country clubs. He belonged to the Buffalo chamber of commerce and was a director of the Buffalo Savings bank. His brother, Julian Kennedy, is a prominent engineer of Pittsburgh. Hugh Kennedy's researches in the iron and steel industry were recognized some time ago in the award of the honorary degree of doctor of laws by Cooper college, Kansas.



HUGH KENNEDY

* * *

William H. Gooderham, 54, president of the British American Motors Ltd., Toronto, Ont., died May 20.

* * *

Maj. Sidney F. Weston, 53, president, Cascade Automatic Sprinkler Co., New York, died May 25 at Conshohocken, Pa.

* * *

Willis H. Diefendorf, of the Diefendorf Gear Corp., Syracuse, N. Y., died May 25. He was interested in the activities of the American Gear Manufacturers' association and from 1920

(*Concluded on Page* 1514)

British Steel Orders Are Heavy

Prices of Structural Shapes and Plates Advanced—India Places 49 Locomotives—Americans Purchasing More Hematite—French Take Large Construction Project in Yugoslavia — Krupps Start New Blast Furnace

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, May 28.—(*By Radio*)—British steelworks are well supplied with orders. Prices of structural shapes and plates have been advanced 5 shillings ($1.21) a ton for the domestic market. Some of the Barrow steelworks are booked to the end of June. The Vulcan Foundry has obtained an order for 39 lomocotives for delivery to India. Demand for tin plate is satisfactory; the market for galvanized sheets is steady. Pig iron buying is moderate, but furnaces are selling their entire output. Some Middlesbrough iron has been sold for delivery to the end of September. Inquiries from overseas are active. Orders for hematite are coming from the United States.

A report from Paris states the French iron and steel markets are satisfactory, and prices quoted by the various comptoirs unchanged. A steel construction order from Yugoslavia involving 100,000,000 marks has been lost to France, Berlin reports. German exports are disappointing, except wire products. Krupps have started a new 600-ton blast furnaces.

British Mills Again Face Continental Steel

BIRMINGHAM, Eng., May 17.—(*European Staff Service*)—Imports have increased, which is disconcerting as since the beginning of the year they have been gradually falling and it was thought that British manufacturers were gaining the upper hand of Continental competition. Within the last week or two Continental steel has reduced in price, and in the smaller sizes at any rate, shows a big advantage compared with prices from British mills. A month ago the Steel Manufacturers association, which controls heavy steel prices in Britain, decided to make no change despite the fact that production costs have increased considerably since the beginning of the year. Some manufacturers were decidedly in favor of

Sterling $4.85

a rise and it is not surprising that the question was reopened at a meeting in London yesterday of the association when the previous decision was reversed and an advance of 5s ($1.21) in home prices declared. There is no change in export prices. This decision was not known on the Birmingham market and a number of consumers sought to secure substantial tonnages on the old rates, but sellers were not prepared to trade except on a small scale. No doubt this will be received with satisfaction among manufacturers but shipbuilders have already voiced their protest.

In Midland pig iron the only buying has been for small parcels on which founders have been pressing for concessions below the recognized rates. In more than one instance useful contracts would have been made if the furnacemen had agreed to accept a little below the price now prevailing. But so far they have been firm in refusing business of that description. Order books are healthy and Northampton furnaces can put on rail all the iron produced and have no need to make sacrifices. Apparently a few consumers have an idea that pig iron will be cheaper, but sellers are not lending the slightest encouragement to this view and point out that if profits are to be made prices will have to be increased. Mer-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, May 27	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$16.98	3 10 0*	$17.46	3 12 0	$17.46	3 12 0	$17.46	3 12 0
Basic	16.13	3 6 6	16.73	3 9 0	16.73	3 9 0	16.73	3 9 0
Basic-bessemer	17.58	3 12 6†	16.78	3 9 0	16.73	3 9 0	16.73	3 9 0
Hematite, Phosphorus 0.02-0.05	17.95	3 14 0	23.66	605*	.....	.....	17.70	3 13 0
SEMIFINISHED STEEL								
Billets	$31.53	6 10 0	$26.19	5 8 0	$26.19	5 8 0	$25.95	5 7 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.92	6 7 6
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.79c	8 5 0	1.31c	5 19 0	1.31c	5 19 0	1.31c	5 19 0
Structural shapes	1.60c	7 7 6	1.14c	5 3 9	1.14c	5 3 9	1.12c	5 2 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.39c	6 6 0	1.39c	6 6 0	1.40c	6 7 0
Sheets, black, 24 gage	2.17c	10 0 0	2.26c	10 5 0	2.26c	10 5 0	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.96c	13 12 6	3.01c	13 13 9	3.01c	13 13 9	3.08c	14 0 0
Bands and strips	2.17c	10 0 0	1.40c	6 7 6	1.40c	6 7 6	1.40c	6 7 6
Plain wire, base	2.06c	9 10 0	1.71c	7 15 0	1.71c	7 15 0	1.71c	7 15 0
Galvanized wire, base	2.93c	13 10 0	2.12c	9 12 6	2.12c	9 12 0	2.11c	9 12 0
Wire nails, base	2.39c	11 0 0	1.79c	8 2 6	1.79c	8 2 6	1.79c	8 3 0
Tin plate, base box 108 pounds	$ 4.49	0 18 6	.....	.....	.....	....	$ 8.97	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported		Francs		Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$16.61	3 8 6	$18.57	475(2)	$17.24	620	$18.58	78
Basic pig iron	16.13	3 6 6	19.94	510(1)	17.10	615	20.96	88
Furnace coke	3.64	0 15 0	6.26	160	5.84	210	5.12	21.50
Billets	31.53	6 10 0	24.24	620	26.27	945	28.82	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.84c	8 10 0	1.36c	755	1.39c	1,065	1.52c	141
Shapes	1.71c	7 17 6	1.26c	700	1.22c	940	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6‡	1.54c	855	1.46c	1,120	1.71c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.92c	1,620	2.70c	2,080	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.96c	13 12 6	3.78c	2,100	3.84c	2,950	3.78c	350
Plain wire	2.06c	9 10 0	1.94c	1,075	2.15c	1,650	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.70c	1,310	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 0d ($3.64) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

chants are pressing for their commission to be increased from 1½ to 2 per cent under the stabilization scheme and this point will be discussed at a meeting after the holiday.

In Middlesbrough the pig iron position is tight and although the official quotations are unchanged merchants with iron to sell are asking £3 10s ($16.97) a ton for No. 3 which is an advance of 1s 6d ($0.36) on recent quotations. There is no prospect of the output being increased immediately, but a curious fact is that while there is a famine in pig iron there are idle blast furnaces and ironstone mines in the Middlesbrough district. Dorman Long & Co. are anxious to reopen another mine, but it is reported they are experiencing difficulty in finding skilled miners. Some men have come back to the industry, having drifted away in the long slump, but there is still a definite shortage. The activity of the Middlesbrough district, however, may be gaged from the fact that unemployment has reached its lowest figure since 1921.

There has been no corresponding increase in the price of Middlesbrough hematite, although it is highly probable that such a move will be made. Makers are sold out to the end of June and are booked for second half at £3 14s ($17.93) for east coast mixed numbers. Brisk conditions continue in the west coast hematite trade where the output of the 12 furnaces is not sufficient for the market and makers find difficulty in meeting demand for prompt deliveries. Superior qualities of iron are being bought by America with good tonnages passing to consumers in British steelmaking centers.

Large Tonnage Booked

Bolckow Vaughan & Co., Middlesbrough, have booked 9000 tons of rails and fishplates for the Argentine. Dorman Long & Co. are also said to be in negotiation for some big contracts covering steel work for new buildings in London. Middlesbrough mills generally are busy, having substantial work on books for billets and rails while shipbuilding material is in better demand. Rails for South America have been booked by firms in the Barrow and Workington district for delivery over an extended period. Workington mills are assured of activity until the end of July.

While imports of foreign iron and steel show an increase over the previous month Birmingham merchants have not felt any invigoration of demand and contend that if heavier tonnages are coming in they are being absorbed on the coast where prices are naturally lower than in the Midland district, owing to the heavy transport charges to be met. Iron and steel bars are cheap enough to be attractive to nut and bolt makers in the Black Country but they are not ordering substantial lots. Similarly in billets there is no demand as the price is not sufficiently low to be of value to local rollers.

In the Staffordshire iron trade conditions are improving gradually and the optimistic forecast earlier in the year is being justified. The expected increase in the price of best iron has not materialized, apparently because makers are not anxious to curb the rising tide of trade and also because their raw materials were bought months ago at low prices. When they come to renew stocks they will have to pay more and probably that time will be considered opportune to pass the advance to the consumer.

British Trade Holding Steady Volume

London, May 13.—(*European Staff Service*)—Imports of iron and steel into Great Britain during April exceeded those of March and of April, 1928. This year's figure for April included 9203 tons of pig iron and ferroalloys, compared with 8731 tons in March, and 252,729 tons of steel, against 173,376 tons in March. Of the pig iron imports, 9 tons came from the United States.

Of the principal articles imported, blooms, billets and slabs accounted for 59,496 tons, of which 29,308 tons, more than 50 per cent, came from Belgium, France and Germany, each supplying between 13,000 and 14,000 tons. Of sheet bars and tin plate bars a total of 33,786 tons were imported, of which 30,862 tons came from Belgium. Imports of plates and sheets amounted to 20,480 tons, hoops and strips, 13,255 tons, and structural steel, 12,414 tons, of which 7988 tons came from Belgium.

Exports of British iron and steel in April were lower than in March, and in April, 1928. This year's tonnage included 46,718 tons of pig iron and ferroalloys, against 44,701 tons in March, and 293,086 tons of steel, compared with 305,437 tons. The largest tonnage of pig iron, amounting to 8330 tons, went to Belgium, the United States coming second with 6300 tons.

Among the principal articles of steel exported were galvanized sheets, 66,035 tons, of which 27,482 tons went to India. Tin plate shipments were 45,091 tons, well divided between the various markets. The tonnage of merchant bars exported was 20,901 tons; plates and sheets, 36,483 tons; cast pipe, 10,253 tons; wrought iron pipe, 25,006 tons. The tonnage of rails exported was 24,744 tons, of which 9016 tons went to the Argentine Republic. Comparative figures follow:

Gross Tons

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron and ferroalloys	Other iron and steel	Pig iron and ferroalloys	Other iron and steel
1926	41,015	270,450	26,105	222,890
1927	50,715	316,455	27,580	322,100
1928	9,935	231,390	37,895	317,210
1929				
Jan.	13,034	231,233	49,408	371,783
Feb.	8,662	151,373	48,609	331,466
March	8,731	173,376	44,701	305,437
April	9,203	252,729	46,718	293,086

German Trade Heavier

Berlin, May 13.—(*European Staff Service*)—Exports of pig iron and ferroalloys from Germany during March were much ahead of February. March exports included, principally, 70,203 tons of merchant bars, hoops and bands, 36,456 tons of wire and wire rod, 30,958 tons of plates and black sheets, 29,694 tons of tubes, 24,715 tons of semifinished steel, 16,716 tons of rails and track material, and 15,561 tons of various forgings. The tonnage of scrap exported was 20,273 metric tons.

Among the principal articles imported were 47,036 tons of merchant bars, hoops and bands, which accounted for nearly 42 per cent of the total tonnage. The tonnage of scrap imported was 17,666 metric tons. Comparative figures follow:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Other iron and steel	Pig iron	Other iron and steel
1926	9,230	95,890	42,730	402,905
1927	23,895	217,505	29,910	347,645
1928	25,535	174,250	24,585	394,575
1929				
Jan.	22,334	154,293	31,820	387,769
Feb.	10,595	101,257	20,861	320,451
March	12,394	112,161	27,090	319,172

French Coke at Record

Paris, May 13.—(*European Staff Service*)—Output of coke at French collieries in March exceeded all previous records and for the first time passed 400,000 tons.

Imports of coke into France in March exceeded February; of these imports, 298,956 tons came from Germany, 59,655 tons from Holland, 58,151 tons from Belgium, the balance coming from Great Britain and other countries.

Exports of French coke in March went principally to Italy, Switzerland, Luxemburg, Spain and other countries. Comparative figures follow:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1926	313,950	462,915	39,320
1927	339,015	395,580	33,430
1928	366,660	447,330	34,810
1929			
Jan.	384,519	438,059	37,443
Feb.	360,182	400,848	34,165
March	411,328	419,478	22,941

British Stacks Active

London, May 13.—(*European Staff Service*)—Furnaces in blast in Great Britain at the end of April were 152, a net increase of seven since the beginning of the month, eight furnaces having been blown in and one having ceased operations.

Production of pig iron in April exceeded that of March and included 196,300 tons of hematite, 260,300 tons of basic, 112,000 tons of foundry and 19,600 tons of forge pig iron.

Production of steel ingots and castings in April was below that of March due to the Easter holidays. Comparisons follow:

Gross Tons

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	*338	855,000	638,600
1926	78	204,800	299,700
1927	149	607,700	758,100
1928	132	550,900	710,400
1929			
Jan.	139	563,900	764,600
Feb.	140	519,600	774,900
March	145	590,500	859,900
April	152	611,300	808,600

*Average for year.

Scrap Trade Formally Adopts Code

Rules Governing Practices Expected to Broaden Usefulness to Industry—Will End "Lack of Mutuality"—Government Assents

RESOLUTIONS designed to eliminate unfair practices from the iron and steel scrap industry and to establish a basis of co-operation between consumers and producers of scrap were adopted by more than 200 dealers at a trade practice conference at the William Penn hotel in Pittsburgh, May 23. Commissioner G. S. Ferguson of the federal trade commission presided, assisted by M. M. Flannery, director of the trade practice division of the commission. Attendance numbered more than 200 dealers, representing firms who ship approximately 90 per cent of the iron and steel scrap handled in the country.

Resolutions adopted condemn such practices as "top-dressing" of cars, defamation of competitors, misrepresentation of price quotations, failure to fill orders, interference with contracts, commercial bribery, overbilling of cars, and in addition made provision for compliance with these rules and the reporting of violations of same. It also was voted that such conferences should be continued.

Benjamin Schwartz, director general of the Institute of Scrap Iron and Steel Inc., spoke prior to the presentation of the various resolutions, stating the purpose of the conference. Mr. Schwartz declared that the meeting was called for three purposes: First, to eliminate unfair practices in the industry; second, to put teeth into the code to be adopted; third, to establish a foundation of co-operation between consumers and producers of scrap. Terming the conditions existing between dealers and consumers of scrap as a "lack of mutuality," Mr. Schwartz declared:

Under this heading of lack of mutuality may be put direct dealing between consumer and producer of scrap. This tendency, if it continues, may jeopardize the assets and the investment of a very important industry in American industrial life. This tendency, if it continues, may diminish the ability of that useful industry to render service to industrial America and to render service to the national welfare, in time of peace and in time of national emergency.

It seems to me that direct dealing and the practices growing out of it are a matter of as great, if not greater, concern to the steel industry as to the scrap iron industry. There are many mills and consumers of scrap, possibly in the hundreds, who may find themselves unable to compete in the sale of finished steel products when faced with strong reciprocal arrangements covering scrap, which in the final analysis amounts to a rebate in price. There are many mills and consumers of scrap, possibly in the hundreds, who may find themselves embarrassed, or may experience difficulty, in securing the vital service from the dealers from whom they have expected to receive their necessary raw material, if the dealers' ability to serve is diminished or restricted, unless these consumers are prepared to impose upon themselves an additional burden and a tremendous expense, which in these days of competition is an unwelcome burden.

Scrap Aids Conservation

Furthermore, it is known that for every ton of scrap gathered, prepared, and shipped to the ultimate consumer, approximately two tons of iron ore and three tons of other valuable raw materials are conserved for future generations. It is, therefore, a matter of interest to the national welfare, which has been served, and served well, by an industry which occupies a very important part in the national policy of the conservation of natural resources. It is hoped that out of this and subsequent conferences there will develop that mutuality which is lacking and without which no business relationship can be profitable. It is hoped that out of this and subsequent conferences there will grow up a machinery of co-operation between consumers and dealers, based on a recognition of the services rendered, based on a recognition that that service is charged with a national interest.

The conference closed Thursday evening with a banquet tendered by the Pittsburgh chapter of the institute. Charles Dreifus, of the Charles Dreifus Co., Pittsburgh, was toastmaster. Speakers included Joseph G. Hitner, Philadelphia, president of the institute; Benjamin Schwartz, New York, director general of the institute; Harrison Nesbit, Pittsburgh, president of the Bank of Pittsburgh, N. A.; Gerald S. Ferguson Jr., Washington, commissioner, federal trade commission; and M. M. Flannery, Washington, director, trade practice conferences.

Resolutions adopted, composing a code of ethics for the industry, follow:

"TOP-DRESSING" OF CARS

Rule No. 1

Delivery of an inferior product against a contract to supply scrap iron and steel according to certain specifications by so arranging the shipment in the car that the inferior product or products will not be readily discovered on surface inspection, the effect of which is to deceive the purchaser as to the grade of scrap, is hereby condemned as an unfair method of competition, an unfair trade practice and contrary to the public interest.

DEFAMATION OF COMPETITORS

Rule No. 2

The defamation of a competitor, by any acts, or by making, causing or permitting to be made or published any false or untrue statement, which impugns the business integrity, the ability to perform contracts, or the credit standing of such competitor, is hereby declared an unfair method of competition.

PRICE QUOTATIONS

Rule No. 3

Circularizing the industry with price quotations, containing indefinite language, or offering prices which appear to be above the general market in any territory, the intent of which is not to pay such price, but is to offer bait to prospective customers, and the effect of which is to demoralize the market within those territories, and disrupt normal, competitive conditions, is hereby declared an unfair trade practice.

FAILURE TO FILL ORDERS

Rule No. 4

The intentional failure to fulfill orders or contracts, except for the act of God, public enemy or other unavoidable cause, or causes beyond human control, is hereby declared an unfair trade practice.

INTERFERENCE WITH CONTRACTS

Rule No. 5

Wilfully inducing or attempting to induce the breach of an existing contract by any means or device whatsoever, during the term of such contract, or interfering or attempting to interfere with the performance of any contractual duty or service connected therewith, such breach or interference being for the purpose or with the effect of dissipating, destroying or appropriating in whole, or in part, the patronage, property or business of another engaged in such industry, is hereby declared an unfair method of competition.

COMMERCIAL BRIBERY

Rule No. 6

Commercial bribery, whatever the form and wherever given, is hereby declared an unfair trade practice, an unfair method of competition and contrary to the public interest.

OVERBILLING OF CARS

Rule No. 7

The wilful overbilling of shipments is hereby declared an unfair trade practice.

FICTITIOUS BILLS OF LADING

Rule No. 8

The presentation or use of fictitious bills of lading or other evidence of billing, for the purpose of securing advances of money or other valuable consideration, is hereby declared an unfair trade practice.

ARBITRATION

Rule No. 9

The industry hereby expresses its approval of the arbitration of disputes among dealers and/or brokers, as preferable at all times to litigation with its costly handicaps and delays,

(*Concluded on Page* 1516)

Jobbers Fail To Act Upon Uniform Cutting Charge Schedule

American Steel and Heavy Hardware Association Finds Lack of Standardization in Individual Warehouses Makes Adoption Difficult

DEVELOPMENT of a practical plan for establishing uniform cutting extras for hot-rolled steel bars was the major problem discussed by the 125 members attending the three-day annual convention of the American Steel and Heavy Hardware association in Washington, May 21-23. The committee on cutting charges, appointed at the 1928 convention, including W. J. Holliday, W. J. Holliday Co., Indianapolis, chairman; Chester Inman, Pratt & Inman, Worcester, Mass.; Guy P. Bible, Horace T. Potts & Co., Philadelphia; and Leslie Edgecomb, Edgecomb Steel Co., Philadelphia; proffered a schedule which is shown in the accompanying tables.

These proposed charges cover only hot-finished, low-carbon steel and do not apply to cold-finished, alloy or high-carbon steel. Attention also is directed to the fact that no quantity differentials are included as a part of the suggested schedule.

In presenting its report, the cutting charge committee told how the charges offered for the members' consideration were tried out in a representative warehouse on 500 typical orders showing a profit of 11 per cent as compared with a loss of 14 per cent on the present basis. In general, the committee's schedule represents an advance of 100 per cent.

Labor Rates Considered

Discussion brought out the varying rates of labor in different sections of the country, also the deviation in the character of the orders handled by distributors throughout the country. Lack of standardization in the problems of individual warehouses makes difficult the application of standardized solution. Members, therefore, seemed reluctant to take any definite action on the committee's schedule. Investigations and studies will be continued however, and the subject will be carried into future meetings of the association. The committee was augmented by the addition of E. D. Graf, Joseph T. Ryerson & Son Inc., Chicago, and J. P. Bardwell, Edgar T. Ward's Sons Co., Chicago.

The 34 warehouses furnishing the information upon which the cost of doing business committee based its survey, earned during the past year an average of $0.92 on each $100 of business transacted, according to the report submitted by A. L. Philbrick, the Congdon & Carpenter Co., Providence, R. I., chairman. This average earning compares with $2.05 in 1927, $2.42 in 1926, $1.41 in 1925, $4 in 1924, $4.67 in 1923, and $1.43 in 1922. The net cost of goods sold in 1928 for each $100 sales was $73.44 compared with $73.83 in 1927. Last year the expense item for each $100 sale jumped to $25.30 from $23.93 the previous year.

Since a number of the companies whose figures went into this report are engaged in the wholesale distribution of hardware, and to the probability of companies with good earnings failing to report, the committee's figures cannot be taken as a true and complete index of the cost of distributing steel through warehouses.

The meetings brought out the importance distributors attach to any means which may be evolved to improve trade practices within the industry. It seemed that less emphasis was placed on the Graham plan as a panacea for the distribution ailments of the industry. This does not mean that the Graham plan is not functioning, for it is. In 25 out of 31 sections of the country, this scheme is reported as gaining favor among the jobbers; in four sections its status is unchanged; in one it is on the decline, and from one, no report was received. In the sections reporting, approximately 75 per cent of the jobbers are now operating under the Graham plan. But the warehousemen feel that the introduction of the plan has caused a material shrinkage in the volume of their bolt and nut business while the profits on unit sales have increased. This phase of the situation, of course, is discouraging. Still, it was generally agreed that the Graham plan is fundamentally sound and that its application to such products as twist drills, taps, and dies might evolve an improvement in the distribution of those products.

Distribution Discussed

The problem of distribution entered the discussions again when the subject of steel sheets came to the attention of those attending the convention. Learning that members of the metal branch of the National Hardware association had appointed a committee of three to work with a committee representing the sheet

Charge on Hot-Finished Low-Carbon Steel

Based on Cross-Section Area

	Proposed Saw Cut		*Proposed Shear Cut
	Minimum Charge 25c	Per Cut	Per Cut
5/16	.25	.02	.01
3/8	.25	.02	.01
7/16	.25	.03	.02
1/2	.25	.04	.02
9/16	.25	.04	.02
5/8	.25	.04	.02
11/16	.25	.04	.03
3/4	.25	.07	.03
13/16	.25	.07	.03
7/8	.25	.07	.03
15/16	.25	.07	.03
1	.25	.07	.04
1 1/16	.30	.10	.04
1 1/4	.30	.10	.05
1 3/16	.30	.10	.05
1 1/4	.30	.10	.05
1 3/4	.30	.12	.07
1 1/2	.30	.12	.07
1 5/8	.42	.12	.10
1 3/4	.42	.16	.10
1 7/8	.42	.16	.10
2	.42	.20	.10
2 1/8	.55	.20	....
2 1/4	.55	.26	....
2 3/8	.55	.26	....
2 1/2	.55	.35	....
2 5/8	.70	.35	....
2 3/4	.70	.40	....
2 7/8	.70	.40	....
3	.70	.40	....
3 1/4	.80	.40	....
3 1/2	.80	.46	....
3 3/4	.85	.46	....
4	.85	.60	....
4 1/2	1.00	.60	....
5	1.10	.75	....
5 1/2	1.30	1.00	....
6	1.30	1.20	....
6 1/2	1.45	1.20	....
7	1.55	1.45	....
7 1/2	1.65	1.60	....
8	1.80	1.75	....

*Minimum charge, 25c.

steel mills, the delegates to the American Steel and Heavy Hardware association convention decided to appoint a similar committee, believing the most good may be accomplished through the combined efforts of the three committees. This committee was not named at the convention.

Control of resale prices, another phase of the distribution problem, came before the members in an address of Representative Clyde Kelly who explained the purpose and details of the proposed Capper-Kelly bill covering the regulation by manufacturers of resale prices. Further light on the same subject was given by M. Markham Flannery, director, trade practice conference, federal trade commission, who outlined the various ways his organization has developed to aid business.

While the questions of the dwindling size of warehouse orders and the competition of mills arose, as they have for years past, the exceptional volume of business being done by warehouses in almost all parts of the country and the generally satisfactory state of iron and steel markets dampened interest in these problems.

Interest Is Evidenced

Interest in improved trade practices was crystallized in the reports of the trade practice conference committee and the committee on national legislation affecting trade relations, chairmen of which were A. J. Bragg, Egleston Bros. & Co., Long Island City, N. Y., and S. L. Orr, Orr Iron Co., Evansville, Ind. Acting upon a motion introduced by S. L. Orr, members voted to appoint a committee of five with instructions to arrange a trade practice conference with the federal trade commission as soon as arrangements can be concluded.

The report of A. J. Bragg, chairman of the iron and steel committee, showed an increase in large warehouse orders, some confusion in sheet discounts, improved sales conditions, imported steel competition generally getting worse at New York lately and more sales effort necessary to maintain volume business.

A. J. Lockwood, chairman of the cold-finished steel committee, said the lost shafting market had been replaced by automotive demand, with 750,000 tons total made last year. Half of the jobbers report satisfactory margins on cold-finished steel. More alloys are being used.

One of the pertinent subjects discussed, introduced by R. H. Welton, Chase, Parker & Co., Boston, was that of adequate margins, and the need of closer co-operation between mills and manufacturers and the warehouses. It is essential, he believes, that the mills refrain from competing directly with warehouses. In the main, the problems of each are mutual and redress can come only through meetings on a common ground. Low profits are caused, among other reasons, by this direct competition from the mills and by selfishness among the warehouses.

It was also brought out in the discussions that the ever-dwindling size of warehouse orders is a factor responsible for low profits. Chapin E. Harris, Brown-Wales Co., Boston, pointed out that the acceptance by warehouses of small orders for direct mill shipment has educated buyers to the questionable advantage of overlooking the warehouses when placing business that logically belongs to the distributors.

New Methods Needed

It is desirable that the mills shape their selling methods to conform with these modern sales ideas and ideals.

The practice of customers in returning goods without notice to the distributor is a vexing one with many of the association members. In some centers, it has been ameliorated through the education of the buyers by means of personal letters and by having the salesmen handling such accounts show their customers in what respects the practice works an injustice on the jobber.

A. J. Lockwood, chairman of the board, Edgar T. Ward's Sons Co., Newark, N. J., was elected president of the association. R. H. Sanderson, Cutter, Wood & Sanderson Co., Cambridge, Mass., was chosen first vice president, and W. J. Holliday, W. J. Holliday Co., Indianapolis, second vice president. The executive committee, newly elected, will include Guy P. Bible, Horace T. Potts & Co., Philadelphia; C. P. Rogers, president, Beals, McCarthy & Rogers Inc., Buffalo; A. R. Purdy, A. R. Purdy Co., New York; and L. H. Williams, Williams Hardware Co., Minneapolis.

Uniform Shear Cutting Schedule for Flat Bars

Proposed Per Cut Charge

	3/16	1/4 to 5/16	3/8 to 7/16	1/2 to 5/8	3/4 to 7/8	1 to 1 1/8	1 1/4	1 1/2	1 3/4	2
Under 1"	0.02	0.02	0.03	0.03	0.05	.....	.....	.....	.....	.....
to 1 1/4" incl.	0.02	0.03	0.03	0.05	0.05	0.05	.....	.....	.....	.....
1 1/2	0.02	0.03	0.05	0.05	0.07	0.07	0.07	.....	.....	.....
2	0.03	0.05	0.05	0.07	0.07	0.07	0.08	0.08	0.10	.....
2 1/2	0.05	0.05	0.07	0.07	0.07	0.08	0.08	0.08	0.10	0.10
3	0.05	0.05	0.07	0.07	0.08	0.08	0.08	0.10	0.10	*0.10
3 1/2	0.05	0.07	0.07	0.08	0.08	0.10	0.10	0.10	0.10	0.12
4	0.07	0.07	0.08	0.08	0.10	0.10	0.10	0.10	0.12	0.12
4 1/2	0.07	0.07	0.08	0.10	0.10	0.10	0.10	0.10	0.12	0.12
5 1/2	0.07	0.08	0.08	0.10	0.10	0.10	0.10	0.12	.....	.....
6	0.07	0.08	0.08	0.10	0.10	0.12	0.12	0.12	.....	.....

*Minimum charge 25c.

Schedule for Cutting Flat Bars by Hacksaw

Proposed Charge

	1/8 to 3/16	1/4 to 5/16	3/8 to 7/16	1/2	5/8	3/4	7/8	1	1 1/8
Under 1"	$0.03	$0.03	$0.04	$0.04	$0.05	$0.07	$0.08	.....	.....
To 1 1/4" incl.	0.03	0.04	0.05	0.05	0.07	0.08	0.08	$0.10	$0.12
1 1/2	0.03	0.05	0.07	0.07	0.07	0.08	0.10	0.12	0.12
1 3/4	0.04	0.07	0.07	0.07	0.08	0.10	0.12	0.14	0.14
2	0.04	0.07	0.07	0.08	0.10	0.12	0.12	0.14	0.18
2 1/4	0.05	0.07	0.08	0.08	0.12	0.14	0.14	0.18	0.18
2 1/2	0.05	0.07	0.08	0.10	0.12	0.14	0.18	0.18	0.20
3	0.07	0.08	0.10	0.10	0.12	0.14	0.18	0.20	0.24
3 1/2	0.07	0.08	0.10	0.12	0.14	0.18	0.20	0.24	0.28
4	0.10	0.10	0.12	0.14	0.18	0.20	0.24	0.28	0.30
4 1/2	0.12	0.12	0.14	0.18	0.20	0.24	0.28	0.30	0.32
5	0.12	0.12	0.18	0.18	0.20	0.28	0.30	0.32	0.35
6	0.12	0.14	0.20	0.20	0.30	0.30	0.32	0.35	0.35

	1 1/4	1 1/2	1 3/4	2	2 1/2	3
Under 1"	.....	.....	.....	.....	.....	.....
To 1 1/4" incl.	.....	.....	.....	.....	.....	.....
1 1/2	$0.14	.....	.....	.....	.....	.....
1 3/4	0.18	$0.20	.....	.....	.....	.....
2	0.18	0.20	$0.24	.....	.....	.....
2 1/4	0.20	0.24	0.28	$0.30	.....	.....
2 1/2	0.20	0.28	0.30	0.32	.....	.....
3	0.38	0.30	0.32	0.35	$0.50	.....
3 1/2	0.32	0.32	0.35	0.45	0.55	$0.60
4	0.32	0.35	0.35	0.45	0.60	0.70
4 1/2	0'35	0.45	0.45	0.60	0.70	0.80
5	0.35	0.45	0.45	0.60	0.75	0.85
6	0.45	0.45	0.60	0.60	0.85	1.00

Minimum Charge and Single Cuts

Where per cut charge is $0.07 or less	Min. Chrg.	$0.25
Over .07 but less than .14		.30
.14	.24	.40
.24	.32	.55
.32	.45	.85
.45	.65	1.00
.65	.80	1.20
.80	.90	1.50
Per cut	1.00	1.75

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

ALLIS-CHALMERS MFG. CO., Milwaukee, has taken a contract for equipment for extension of the generating station of the Public Service Co. of Northern Illinois at Waukegan, Ill. The equipment includes a 65,000-kilowatt tandem steam turbine unit, with condenser, circulating water and condensate pumps. This is the fourth unit for this station. The first was rated at 25,000 kilowatts and was installed in 1923; the second at 35,000 kilowatts in 1927 and the third at 50,000 kilowatts in 1927, all built by the Allis-Chalmers Mfg. Co.

* * *

BELLE CITY MALLEABLE IRON CO., Racine, Wis., has let the contract to Nelson & Co., Racine, for a two-story plant addition, 60 x 80 feet.

* * *

CALUMET STEEL CO., Chicago, has moved its downtown offices from 208 South La Salle street, to 33 North La Salle street, Chicago.

* * *

NORTH AMERICAN REFRACTORIES CO., Cleveland, has opened a district sales office in the Koppers building, Pittsburgh, in charge of J. E. Purtell as district sales manager.

* * *

SMITH TWIN TUBULAR BOILER CO., Philadelphia, Howard G. Smith, president, has moved its general offices from 42 East Allen street to 1111 Frankford avenue and has changed its name to Smith Twin Tubular Boiler Co. Inc.

* * *

CANDA GAYLEY STEEL CORP., Carteret, N. J., recently formed to take over the business of the Chrome Steel Works, has changed its name to Chrome Steel Corp. Operations of the company will continue to be carried on at Chrome, N. J.

* * *

MERRILL MACHINERY & SUPPLY CO., Merrill, Wis., specializing in the manufacture of insulation lines, including paper mill hoods, has changed its name to Merrill Mfg. Co., and increased its capitalization from $75,000 to $100,000 to expand its business. A new plating department is to be installed, for both nickel and cadmium plating. The plating works will occupy the remodeled machine shop and forge. F. E. Taylor is president, John H. Hieb, vice president, and W. J. Tesch secretary and treasurer. Anton Swanson is plant superintendent and G. S. Davis is sales manager.

* * *

BUCYRUS-ERIE CO., South Milwaukee, Wis., has awarded contracts for an extension, 85 x 150 feet, to its machine and erecting shop, costing $65,000, and a locomotive round house, 61 x 140 feet, costing $27,000. With equipment, the improvements will cost about $200,000.

* * *

JOHN HEWITT FOUNDRY CO., 17-29 Sherman avenue, East Newark, N. J., has purchased the West Hudson Foundry & Pattern Co. Inc., Kearny, N. J. John Hierwarter, former president of the Kearny company, now is in charge of the nonferrous department of the Hewitt company.

* * *

STEEL SHELVING & PARTITION CO., Scranton, Pa., recently organized, has bought the plant of the Scranton Silk Machine Co., Scranton, Pa., and will equip it for the manufacture of steel shelving, partitions, lockers and cabinets. Machinery and equipment for this line of production has been bought.

* * *

CENTRAL IRON FOUNDRY CO., Detroit, recently formed, has taken over the buildings of the former Detroit Ship-Building Co., 240 Orleans street, and has installed modern machinery and equipment. Production of gray iron castings will be under way by June 1. C. N. White is president and general manager, L. B. Middleditch secretary and treasurer.

* * *

BRUST-HARIG MFG. CO., Chicago, expects to start operations soon in a new tool and die plant at 1735-9 Carroll avenue. C. W. Greenfield and Edward H. Wachs, Chicago, are in charge of erecting the building for the Brust-Harig company, which is a 2-story brick mill type 52 x 125-foot structure. The Brust-Harig company already has purchased a large number of machine tools. It is expected the building will be completed within about 30 days.

* * *

VANADIUM CORP. OF AMERICA has moved its Chicago office from suite 1604 to suite 2104 in the Straus building.

* * *

PITTSBURGH STEEL CO., Pittsburgh, is planning a by-product coke for the vicinity of Monessen, Pa., to cost about $2,000,000. The Pittsburgh & Lake Erie railroad has started construction of a spur to the site.

* * *

BENDIX-COWDREY BRAKE TESTER INC. has been formed to take over the business of the Cowdrey Brake Tester Organization Inc., Fitchburg, Mass., which recently was bought by the Bendix Aviation Corp. Vincent Bendix has been made chairman, Charles Cowdrey honorary vice president and George F. Lewis temporary president.

* * *

DROP DIES & FORGINGS CO., Cleveland, has been formed to take over the business of the Drop Die & Engineering Co. and Drop Die Forging Co., both of Cleveland. Joseph F. Rice is president. No change will be made in personnel. The company will continue the manufacture of automotive, aeronautical, and miscellaneous forgings.

* * *

MICHIGAN GRAY IRON FOUNDRY, recently incorporated, has taken over the business and plant of the Marine City Motor Castings Co., Marine City, Mich. S. D. Lamkins, of the New Haven Foundry Co., is organizer of the new company. George Kramer, formerly with the Marine City Motor Castings Co., has been retained as manager.

* * *

UNITED TRACTOR & EQUIPMENT CO., a recently-formed cooperative farm and industrial equipment manufacturing company, has been added to by merger of two additional companies. They include the I. B. Rowell Co., Waukesha, Wis., feed mills, ensilage cutters and silo fillers, and the Northwestern Mfg. Co., Mil-

waukee, portable electric arc welding equipment.

* * *

WINTON AVIATION ENGINE CO. has been incorporated at Cleveland to build a diesel motor for airplane use.

* * *

ELECTRIC WELDING CO. has moved its main office to fifth floor of the Conestoga building, Wood and Water streets, Philadelphia.

* * *

FORD & KENDIG, Philadelphia, Leighton M. Ford, president, have bought a site at Fifty-fourth street and Elmwood avenue for a steel fabricating plant.

* * *

OSGOOD CO., Marion, O., has bought the entire capital stock of the Power Mfg. Co., of Marion, manufacturer of oil engines. C. A. Owen is president of the Osgood Co.

* * *

UNION CARBIDE & CARBON CORP., through a subsidiary, has bought the capital stock of the Meraker Smelting Co. Ltd., which owns and operates four hydroelectric power stations in the Trondjhem district of Norway.

* * *

SOUTHERN TEXTILE MACHINE CO. has established a plant at Chattanooga, Tenn., and started production. The plant manufactures various types of machinery and equipment used in woolen mills, and is said to be the first plant of this nature in the southern district. It is also reported that the company plans investing $50,000 in a plant at Nashville, Tenn.

* * *

EXTRUDED METAL PRODUCTS CO., Wheeling, W. Va., Joseph Millard president, has broken ground for a foundry building. The company recently bought the plant of the Dillon Bros. Machine Co. and moved its plant there from Martins Ferry, O. The foundry at the latter place has been continued and will be moved to Wheeling when the new building is completed.

* * *

NEW ERA MOTORS INC. has been incorporated with a Delaware charter to manufacture a front drive automobile and plans to establish plants at Cleveland and St. Louis. The car is already in production on contract. A. M. Andrews is president, W. J. Muller vice president, Stanley Nowak treasurer and G. H. Eichelberger counsel. The directors are C. Harold Wills, designer of the Wills Ste. Claire automobile; R. E. Allen, vice president of the Central Union Trust Co.; Frederick Gardner, vice president of the Gardner Motor Car Co.; P. N. Furber, president of the Trans-Lux Daylight Picture Screen Corp., and W. V. C. Ruxton, partner in the brokerage firm of Spencer Trask & Co.

* * *

MIDLAND STEEL PRODUCTS CO., Cleveland, beginning Jan. 1, 1930, will restrict its production to frames, axle housings and parts for automotive vehicles, and will concentrate its entire effort and facilities to serving the automobile industry. The new policy is announced by E. J. Kulas, president, in connection with cancellation of its contract for the manufacture of steel freight car doors.

* * *

H. H. ROBERTSON CO., Pittsburgh, has received a contract for steel for seven new hangars to be constructed in Central America and Mexico for the Pan-American Airways. A contract also has been received for reconstruction of two army hangars. The Pan-American hangars are to be 120 x 120 feet. Similar hangars have been supplied in Miami, Havana, Santiago, San Juan and in British Honduras.

* * *

ELSEY RIVER TRANSPORTATION LINE, Pittsburgh has taken a contract to move 20 coal-carrying steel barges for United States engineers, Rock Island district, from Pittsburgh to Keokuk, Iowa. The same tow contains a large derrick boat built by the Midland Barge Co., Midland, Pa., for flood prevention work on the lower Mississippi. It is 150 x 70 x 13 feet and has a 200-foot boom.

* * *

YOUNGSTOWN STEEL CAR DOOR CO., owned largely by interests connected with the Youngstown Sheet & Tube Co., plans to move its manufacturing operations from Cleveland to Youngstown, O. A side of 15 acres on the Erie railroad tracks has been bought and a plant will be built. James A. Campbell is president. The move is planned to place production close to raw material source. The company's product is being manufactured now by the Midland Steel Products Co., Cleveland.

* * *

COMET ENGINE CORP. has been formed by members of the Gisholt Machine Co., Madison, Wis., and New York and San Francisco capital, to take over the Aircraft Engine Co., Oakland, Calif. Manufacture of the Comet airplane power plant will be transferred from Oakland to Madison, where it will occupy the former plant of the Northern Electric Co., owned by the Gisholt company, and containing 125,000 square feet. George H. Johnson, vice president of the Gisholt company, and John H. Geisse, also of Madison, are vice presidents of the new Comet company.

* * *

ALEMITE MFG. CORP., Chicago, has changed its name to Alemite Corp. to avoid confusion with another firm. No other change is being made.

* * *

J. I. CASE THRESHING MACHINE CO., Racine, Wis., will change its name to the J. I. Case Co. It is stated this will not affect the corporate identity of the company in any way.

* * *

GENERAL MOTORS CORP., Detroit, has bought the Allison Engineering Co., Indianapolis. The company has been developing aviation motors, including a diesel type. This research will be enlarged by General Motors Corp.

* * *

MID-CITY FOUNDRY CORP., 945 West Forty-ninth place, Chicago, is equipping its foundry with a crane runway and 5-ton, 3-motor overhead traveling crane. The work is being done by Abell-Howe Co., engineers, 53 West Jackson boulevard, Chicago.

* * *

PITTSBURGH Foundrymen's association has elected officers as follows: President, L. W. Mesta, Mesta Machine Co., Homestead, Pa.; vice president, W. E. Troutman, Duquesne Steel Foundry Co., Coraopolis, Pa.; secretary-treasurer, William J. Brant, Pittsburgh. The executive committee comprises C. D. Carey, American Steel Foundry, Verona, Pa.; L. V. Stevens, Marine Mfg. Supply Co., Pittsburgh; R. N. Cook, Eclipse Pattern Co., Pittsburgh; F. C. T. Dariels, Mackintosh-Hemphill Co., Pittsburgh, and H. F. Seiffert, Westinghouse Electric & Mfg. Co., East Pittsburgh.

* * *

HARBISON-WALKER REFRACTORIES CO., Pittsburgh has reelected the following directors: H. W. Croft, Joseph Dilworth, O. M. Reif, J. E. Lewis, Ralph W. Harbison, Nin McQuillen, J. St. C. Brooks Jr., Raymond Willey, Kenneth Seaver, Richard K. Mellon, J. E. MacCloskey Jr., J. B. Callum, John F. Fletcher, B. A. Clements, Arthur E. Braun. Directors have chosen the following officers: Chairman, H. W. Croft; president, J. E. Lewis; vice presidents, O. M. Reif, Nin McQuillen, Kenneth Seaver, Raymond Willey; secretary, P. R. Hilleman; treasurer, W. Forman Bickel. G. G. Coolidge has been appointed assistant to the president, and W. B. Coullie general sales manager.

Obituaries

(*Concluded from Page* 1506)

to 1923 served on its executive committee and again was elected to that office at the recent thirteenth annual meeting held in Cleveland this month.

* * *

George T. Gwilliam, 69, president, Gwilliam Co., manufacturer of ball bearings, with plants in Philadelphia and Brooklyn, N. Y., died May 25.

* * *

James E. Vandeventer, 68, wire manufacturer and secretary of the Mid-States Steel Co., Anderson, Ind., died May 21.

* * *

J. C. Blair, 65, of A. G. Kidston & Co., London, England, and Glasgow, Scotland, merchants and exporters of iron and steel, died May 15.

* * *

L. C. Primus, office manager of the Diversey Foundry, St. Charles, Ill., died May 3 from injuries sustained in an automobile accident.

* * *

James Lewis, M. L. A., senior member of the iron firm of William Lewis & Sons, St. John, N. B., died at his home in that city, May 23. He was a member of the provincial legislature.

* * *

Thomas Wray, 65, vice president and general manager of the Washburn Wire Co., Providence, R. I., and formerly assistant superintendent of the South Works of the American Steel and Wire Co., Worcester, Mass., died at his home in Providence May 24.

* * *

John F. Rae, representative of the National Tube Co., Pittsburgh, in South America, dropped dead on the bank of the Catalumbo river, Venezuela, on May 22. Mr. Rae until a year ago was chief inspector of materials at the McKeesport, Pa., plant of the National Tube Co.

* * *

A. L. Dreher, 43, who had been traffic manager for Hyman-Michaels Co., Chicago, for about 15 years, died recently following a short illness. Prior to his connection with Hyman-Michaels Co., Mr. Dreher had been in traffic work with the Northern Pacific and Chicago Great Western railroads, Lehigh Portland Cement Co., and the St. Paul office of Swift & Co.

* * *

J. N. Lapointe, whose death was noted on page 1443 of IRON TRADE REVIEW of May 23, had not been connected with the Lapointe Machine Tool Co., Hudson, Mass., since 1910. For seven years after that he was head of the J. N. Lapointe Co., New London, Conn., but had not been actively identified with the broaching machine business since 1917. J. J. Prindiville has been president and treasurer of the Lapointe Machine Tool Co. since 1913.

* * *

Frederick M. Strong, 80, at one time prominent in the tin plate industry of the Middle West, died May 19 at Longmeadow, Springfield, Mass. He formerly was secretary of the Laughlin Nail & Tin Plate Co., Martins Ferry, O., and later was general manager of the American Sheet & Tin Plate Co. mill at Elwood, Ind. At one time he was president of the Juniata Iron & Steel Co., Greencastle, Ind., but in recent years he was in the advertising business with his son at Springfield, Mass.

* * *

Frank Burgess, 69, president and general manager of the Boston Gear Works, Boston, since 1925 and prior to that general manager for many years, died May 18 after a lengthy illness. He was born in Natick, Mass., April 25, 1860. In 1880 he was employed by the Union Switch & Signal Co. He later became affiliated with the Gamewell Fire Alarm Co., Newton, Mass., and later, in 1890, started to work for George B. Grant, founder of the Boston Gear Works and after a year purchased it and commenced to develop it.

* * *

Dwight M. Houston, 52, foundry engineer, the research and development department of the International Nickel Co., New York, died recently at his home at Indianapolis. Previous to his connection with the International company he was employed by the Nordyke-Marmon Co., Indianapolis. He was a graduate of Miami university, Oxford, O., and was known for his research work on the application of nickel to gray iron castings. He was a member of the American Foundrymen's association and American Society for Steel Treating.

Deliver 68-Ton Girder

Buffalo, May 28.—The largest single steel girder ever delivered here, weighing 137,000 pounds, has been delivered by the Fort Pitt Bridge works and will be used in construction of the bridge across Cazenovia creek. It was brought on three flat cars, and is 105 feet long, 9 feet 6 inches in height and 22 inches thick. A. V. Dolan, Pittsburgh, supervised moving the girder from plant to job without mishap.

Freight cars averaged a daily movement of 32.3 miles in March.

Berkshire Iron Ore Mine Wins Safety Trophy

The Berkshire iron ore mine, Stambaugh, Mich., operated by Oglebay, Norton & Co., Cleveland, has been adjudged winner in the metal mine group of the national safety competition for 1928. In the 1927 contest the Berkshire won third place, and honorable mention. In the same contest the Bristol mine, under the same management, was adjudged winner. The Sentinels of Safety trophy is transferred from one of the company's properties to another.

Since May, 1927, the Berkshire mine, employing about 180 men, has operated with only one minor lost time accident. Announcement of the award came in a letter from R. P. Lamont, secretary of the interior.

British Institute Plans Meeting in Germany

A large attendance is promised for the forthcoming meeting of the British Institute of Metals to be held in Dusseldorf, Germany, Sept. 9-12. This will be not only the first meeting of the institute in Germany, but also will constitute the first gathering of metallurgists and engineers in that country since 1914. The conference was invited by the Verein Deutscher Ingenieure and the Deutsche Gesellschaft fur Metallkunde. Papers will be presented by representatives from many nations. The program includes numerous plant visitations as well as social gatherings. G. Shaw Scott, 36 Victoria street, Westminster, London, S.W.1, is secretary of the institute.

Steel Price Index Rises

Washington, May 28.—Wholesale price index number for April for iron and steel was 98.2, compared with 97.1 for March and 95.1 for April, 1928, taking 1926 at 100, according to the bureau of labor statistics, department of labor.

April nonferrous metals wholesale price index was 113.1, compared with 117.2 for March and 91.3 for April, last year, while April wholesale price index for "other metal products" is given at 98.5, compared with 98.4 for March and 96.9 for last April.

Structural steel wholesale price index number for April and March, 1929, and April, 1928, are all at 97.

Pig iron and steel ingot output in Czechoslovakia in March was a record.

Machinery

Orders Maintained at High Rate with No Improvement in Deliveries—Large Crane Order Is Placed in the East

CURRENT business in machine tools and shop equipment is maintained at a high rate and with the exception of the automotive industry, all lines of industry are participating in the buying. Manufacturers are unable to reduce their backlogs and no improvement is to be found in deliveries. Current lists involve considerable equipment. One of the most recent large orders in the railroad field was the purchase by Chesapeake & Ohio of 66 cranes, the business being divided between four manufacturers. Builders of farm equipment in the Middle West again are inquiring for production equipment. Some apprehension is being shown in the East as to business during the summer months, but conditions outside the machine market are said to account for this view.

New York, May 28.—Sales and inquiry for machine tools continues brisk, most makers noting a slight improvement in both this week. While there is an absence of large lists, buying is well spread out. Delivery continues to be an important factor, some reporting a slight improvement in this situation while others appear to be unable to reduce backlogs. Most of the pending business of the Lycoming Motors Corp., Williamsport, Pa., has now been placed. Grinding machinery is selling in large volume and one New England maker booked more than 60 machines this week in this territory. The new plant of the Western Electric Co., Baltimore, is being tooled and a liberal amount of business is being placed, including lathes, drills and presses. One company took several presses for this plant. Manufacturers of boring machinery, in some instances, are booked ahead several months and are unable to fix delivery dates.

Chesapeake & Ohio railroad last week purchased 66 cranes from several builders. This constituted one of the largest orders in weeks.

Worcester, Mass., May 28.—While machine tool buying remains satisfactory, an undercurrent of uneasiness is beginning to appear, leading manufacturers to believe that sales will drop off during the summer months. Orders asking immediate delivery are numerous. European bookings remain steady. Conditions outside the machine tool market generally are attributed as the cause of the conservatism in buying. Good business, however, is expected.

Pittsburgh, May 28.—The machine tool market is active both in awards and inquiry. Several sizable lists are interspersed among the general run of small individual jobs still pending. One list, calling for 25 tools for an unnamed buyer, has just appeared. Westinghouse Electric & Mfg. Co. continues to place tools on its second quarter list. Buyers still are unable to obtain prompt delivery on practically all types of tools. A good volume of business still is pending in the crane market, although awards are few.

Cleveland, May 28.—With the exception of orders from the automotive industry, business in this district remains good. Manufacturers are well booked up and promising nothing better than August or September delivery. Dealers are carrying the burden of the delivery situation with customers pushing for more prompt shipment. General manufacturing in the Cleveland area is at a fast pace as indicated in the orders for all types of tools and machine shop accessories. Used equipment moves well, but dealers have difficulty maintaining any sort of a complete line.

Chicago, May 28.—Machine tool sales are holding steadily to the level of the past several months, and it is indicated this month's sales will compare favorably with March business. Orders were well distributed among all classes of heavier equipment. Billings this month are high. International Harvester Co. has issued a new inquiry list, and several other farm implement and tractor builders are asking for estimates on standard equipment. John Deere & Co. purchased several machine tools for its Waterloo, Iowa, plant. Chicago, Burlington & Quincy railroad bought a 36-inch railroad shaper, and Atchison, Topeka & Santa Fe closed on several additional items. It is expected that purchases against the latter road's large inquiry that has been pending for some time will be completed shortly. The delivery situation remains virtually unchanged.

CRANE ORDERS PLACED

Sixty-six cranes for Chesapeake & Ohio railroad; 24 electric overhead cranes of 2½ tons to Hoist & Crane Engineering Co.; four 5-ton overhead cranes to Shepard-Niles Crane & Hoist Corp.; two 5-ton to Chisholm-Moore Mfg. Co; and 36 jib cranes of 2 tons to unnamed builder.

Ten electric overhead cranes for Baltimore plant of Western Electric Co., to Cleveland Crane & Engineering Co.; includes one 50-ton, one 40-ton, four 15-ton, one 10-ton, one 7½-ton and two 5-ton.

Two cranes, including one 1-ton special push crane and one 1-ton special pivot crane, for Dallas Brass & Copper Co., Chicago, to H. D. Conkey & Co.

Two electric overhead cranes for new foundry of Nash Motors Co., Racine, Wis., to Milwaukee Electric Crane & Hoist Corp.

Among single orders were: 30-ton electric overhead crane for Thomson-Starrett Co., to Whiting Corp.; 15-ton crawler crane for Tisdale Lumber Co., Astoria, N. Y., to Forsythe Bros.; 6½-ton crawler crane for Peter Klockner, Brooklyn, N. Y., to Forsythe Bros.; 1-yard crawler shovel for Green Construction Co., New Canaan, Conn., to Forsythe Bros.; 1-yard crawler shovel for Elcho Construction Co., Fort Lee, N. Y., to Forsythe Bros.; single I-beam hand-geared crane for Filer-Perry Equipment Co., Miami, Fla., to H. D. Conkey & Co.; 1-ton single I-beam hand-geared crane for Texas Public Utilities Corp., Bowrie, Tex., to H. D. Conkey & Co.; 5-ton double-girder hand-geared crane for J. L. Simmons Co., Bloomington, Ill. to H. D. Conkey & Co.; 5-ton side-braced handpower crane for Laclede Steel Co., St. Louis, to H. D. Conkey & Co.; 3-ton low-headroom 3-motor crane for Consolidated Machine Tool Corp., Rochester, N. Y.; 5-ton single I-beam underhung crane for Miehle Printing Press & Mfg. Co., Chicago, to H. D. Conkey & Co.; 5-ton 3-motor cab-controlled crane for Iowa Steel & Iron Co., Cedar Rapids, Iowa, to H. D. Conkey & Co.; 1-ton underhung push crane for Colonial Steel Co., Pittsburgh; 1-ton single I-beam push crane for Walworth Co., South Boston, Mass.; skull cracker for Otis Steel Co., Cleveland; to Wellman-Seaver-Morgan Co.

CRANE ORDERS PENDING

25-ton stiff-leg derrick for Chicago, Milwaukee & St. Paul; pending.

Used ¼ to ⅝-yard caterpillar shovel for Olentangy Stone Co., Delaware, O.; pending.

Fellowship Honors Edison

An Edison fellowship for research has been established at the General Electric Co. research laboratory at Schenectady, N. Y., in honor of Thomas A. Edison and in commemoration of the fiftieth anniversary of his incandescent lamp. The fellowship caries a grant of $3000. Selection from applicants will be made by the National Research council with the advice of the director of research of the General Electric Co.

Hoist Orders Decline

New York, May 28.—Hoists ordered in April declined 14.621 per cent as compared with March, according to the monthly report of the Electric Hoist Manufacturers' association. The value of April business was lower by 13.586 per cent as compared with the previous month and shipments 6.0097 per cent smaller.

The next meeting of the association will be June 28 at Niagara Falls, N. Y.

Phillips Bros., steel merchants and importers, have moved their headquarters to 34 South Seventeenth street, Philadelphia.

April Iron, Steel Total in Canada Down

Toronto, Ont., May 28.—Production of pig iron in Canada in April amounted to 79,341 long tons, 8 per cent under the 86,176 tons produced in March but 6 per cent over the 74,736 tons reported for April, 1928. Compared with the output of the previous month, basic dropped from 74,070 tons to 57,639 tons, and malleable from 4148 tons to 2663 tons, but foundry iron advanced from 7958 tons to 19,039 tons.

For the four months ending April, cumulative production of pig iron totalled 347,220 tons, an increase of 23 per cent over the 282,823 tons produced during the corresponding period of last year, and included 269,727 tons of basic iron, 65,000 tons of foundry, and 12,493 tons of malleable.

Production of ferroalloys during April, at 5744 tons, was slightly under the 5972 tons reported for March. For the first four months the production totalled 23,981 tons, against 17,808 tons in the corresponding period of 1928.

Production of steel ingots and direct steel castings in April declined slightly from the high level reached in March, amounting to 122,102 tons compared with 137,158 tons. April output showed a slight increase in the tonnage of castings, to 6220 tons from 5829 tons, while ingots dropped from 131,329 tons to 115,882 tons.

For the first four months of the year production totalled 492,965 tons, an increase of 19 per cent over the 414,153 tons reported for the first four months of 1928.

Boiler Orders Increase

Washington, May 28.—New orders for 1703 boilers, aggregating 1,768,512 square feet, were placed in April, according to the department of commerce. This compares with 1466 boilers with 1,558,224 square feet ordered in March and 1567 boilers with 1,459,923 square feet last April. Four month totals for 1929 are 5286 boilers with 5,775,531 square feet and one year ago 5444 boilers with 5,207,450 square feet.

More Barrels Are Made

Cleveland, May 28.—Barrels shipped by members of the Steel Barrel Manufacturers' institute, Cleveland, in April numbered 593,817 compared with 521,096 in March. Unfilled orders as of May 1 numbered 542,752, against 467,593 on April 1. April production of all classifications was 58.4 per cent of capacity.

April Plate Orders Off; 4 Months Higher

Washington, May 28.—April orders for fabricated plates declined sharply from March but for the first four months a decided gain is shown over the same period of last year. The department of commerce comparison follows:

	Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1928					
April	50,347	22,095	4,654	619	16,265
Total 4 mos.	182,794	83,954	12,292	2,686	62,780
May	42,487	14,852	4,744	202	17,768
June	35,202	12,204	3,225	778	15,803
July	35,959	16,881	1,848	499	12,159
Aug.	47,245	24,807	1,814	429	17,579
Sept.	40,281	18,572	1,642	386	13,976
Oct.	53,983	23,960	1,861	2,435	17,480
Nov.	54,277	32,381	2,081	563	10,731
Dec.	36,254	14,217	2,216	655	12,060
(Year)	528,482	241,828	31,723	8,633	181,336
1929					
Jan.	32,705	11,055	2,018	325	11,567
Feb.	*58,684	16,093	6,356	95	*18,468
March	*57,869	*22,045	5,656	631	*15,274
April	40,675	9,984	2,483	2,462	23,167
Total 4 mos.	189,933	59,177	16,513	3,513	68,476

*Revised.

Malleable Output Holds

Washington, May 28.—Malleable castings production for April shows a slight increase over March, but for the first four months of this year a gain of about 21 per cent is shown over the same period of last year. Department of commerce comparison follows:

1928	Production net tons	Shipments net tons	Orders booked net tons	Per cent of capacity operated
Jan.	61,072	55,432	62,328	62.7
Feb.	65,359	61,011	64,419	66.8
March	70,070	71,224	70,288	73.0
April	63,380	65,001	62,056	66.0
Total, 4 mo.	259,881	252,668	259,091	67.1
May	67,903	65,823	63,847	70.7
June	67,090	66,737	61,071	69.9
July	60,290	60,084	60,964	63.1
Aug.	68,606	66,962	66,128	72.1
Sept.	62,665	61,736	61,163	66.3
Oct.	70,054	63,510	65,780	73.4
Nov.	63,560	58,346	59,664	66.8
Dec.	59,428	56,867	61,182	63.4
Total, year	779,477	752,733	758,890	67.9
1929				
Jan.*	73,364	77,424	77,047	77.7
Feb.*	73,679	70,914	77,849	77.2
March*	83,733	81,425	87,261	87.8
April**	83,933	80,870	81,158	87.7
Total, 4 mo.	314,709	310,633	323,315	82.6

*Revised.
**Preliminary.

Index Machinery Corp. has moved from New York to 49 Central avenue, Cincinnati.

Gray Iron Foundries' Unfilled Orders Up

Cleveland, May 28.—Production of gray iron castings by 102 representative foundries reporting to the Gray Iron Institute Inc., Cleveland, in April was 133.1 per cent of normal, on the average monthly output of the last three calendar years. Ninety-three foundries, reporting on the business outlook, were divided as follows: 51 good, 39 fair and 3 poor. Following is a comparison for April:

	No. of Foundries Reporting	Short tons	Per cent of Normal*
Normal production	102	23,614	100.0
Production, Apr., 1929	102	31,439	133.1
New orders, rec'd., Apr.	62	14,226	107.9
Unfilled orders, Apr. 30	59	22,795	174.4
Materials rec'd April†	85	28,042	132.1
Mat'ls on hand Apr. 30†	88	34,077	166.0

*Normal production is the average monthly production in 1926, 1927 and 1928. The percentages are in ratio to the total normal production for the number of foundries shown.
†All grades of pig iron and all grades of scrap.

Scrap Trade Adopts Code

(*Concluded from Page* 1509)

and it is the judgment of this conference that arbitration of disputes, under the rules of a recognized code, formulated for the industry, should be encouraged as a good trade practice.

COST ACCOUNTING

Rule No. 10

It is the judgment of this industry that an accurate knowledge of costs is indispensable to intelligent and fair competition, and the general adoption of correct and uniform methods of costs as a means of correcting various unfair practices heretofore mentioned, is strongly recommended as a good trade practice.

OVERWEIGHTS

Rule No. 11

Failure of dealers or brokers to give credit for overweights, where credit for overweights has been passed by the consumer, is hereby declared an unfair trade practice.

COMPLIANCE WITH RULES

Rule No. 12

WHEREAS, compliance with these rules is essentially a matter for the industry itself, and

WHEREAS, it is desirable that outside agencies of enforcement should be used as a last resort and that violations be adjusted expeditiously and without notoriety within the industry, therefore be it

RESOLVED: That it is the sense of this conference that all violations of these rules be referred in the first instance to the Institute of Scrap Iron and Steel Inc., for investigation and adjustment.

CONTINUATION OF CONFERENCE

Rule No. 13

RESOLVED: That this conference of the scrap iron and steel industry be continued as a permanent conference for the suppression of unfair practices and that the executive committee of the Institute of Scrap Iron & Steel Inc., shall cause to be selected a committee or committees, to investigate alleged violations of these resolutions and to make complaints of such violations to the federal trade commission, and if deemed advisable such committee or committees may request the federal trade commission, from time to time, to call new conferences of the industry for the purpose of amending these resolutions, and

RESOLVED further, that such committee be authorized to send its accredited representatives from time to time to make such investigations or inspection as may be necessary to determine whether the resolutions adopted by this conference are being observed in letter and in spirit.

April River Traffic Is Seasonally Larger

Pittsburgh, May 28.—River shipments of iron and steel products in the Pittsburgh district during April were heavy, according to figures just released by the United States engineer office here. Activity among steelmaking plants in the Pittsburgh district is reflected in a new high mark for April over the Monongahela river. Ohio river tonnage was second only to April, 1928.

Total shipments in the first four months on the Monogahela totaled 356,444 tons, against 316,918 tons a year ago. Ohio river tonnage of 318,186 tons compares with 335,686 tons in the first four months of 1928. Comparisons follow:

1929	Allegheny	Monongahela	Ohio
January	.....	80,402	48,471
February	.....	83,358	72,203
March	25	93,627	92,040
April	210	99,067	105,472
1928			
December	.....	79,595	78,213
November	800	143,238	137,019
October	1,130	131,281	130,808
September	200	136,227	125,062
August	50	109,738	124,066
July	.....	91,834	90,145
June	2,350	75,422	98,156
May	1,863	86,722	112,818
April	470	87,581	110,356
March	725	77,908	77,945
February	385	73,360	87,635
January	330	78,069	69,750
Total	8,303	1,160,975	1,239,973

Babbit Sales Are Lower

Washington, May 28.—In sales, apparent consumption and consumption by producers, babbitt metal showed a slight decrease for April from March. Department of commerce figures for apparent consumption for the first four months of 1929 show an increase over the same period of 1928 of more than 5,000,000 pounds. Comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1928			
April	4,842,656	3,724,691	1,117,965
Total (4 mos.)	19,169,175	15,105,808	4,063,367
May	4,606,899	3,578,422	1,028,477
June	4,731,023	3,625,347	1,105,676
July	4,692,825	3,816,707	938,955
August	4,755,662	3,843,680	911,982
September	5,308,403	4,309,004	999,399
October	5,796,419	4,605,179	1,191,240
November	5,630,417	4,356,670	1,273,747
December	4,985,942	4,148,601	837,341
Tot. (1928)	59,676,765	47,338,625	12,338,140
1929			
January	6,093,267	4,876,506	1,216,761
February	5,720,243	4,695,669	1,024,574
March	6,465,613	5,171,047	1,294,566
April	6,046,445	4,857,258	1,189,187
Total (4 mos.)	24,325,568	19,549,124	4,776,444

Taking More Machinery

Australia, though nearly as large as the United States in area but with a population of only 6,300,000 persons, still is largely devoted to grazing, agriculture and mining, states the department of commerce. Manufacturing, while steadily developing, continues a secondary activity but the number of plants, many of which are branches of foreign firms, is increasing.

The latest statistics for Australian industrial machinery imports cover the period end of June 30, 1927, and show that imports were valued at £4,973,450, an increase of 15 per cent over the previous year. Great Britain was first with 53 per cent of the total and the United States second with 37 per cent.

Gives Fund to Society

Ira N. Hollis, honorary member and past president of the American Society of Mechanical Engineers, and chairman of the committee on awards, has presented H. W. Coes, chairman of the finance committee of the organization, with a check for $1000. This money is for a bibliography of the history of engineering and for such books as are not already in the library of the United Engineering society in New York.

April Record Month for Steel Castings

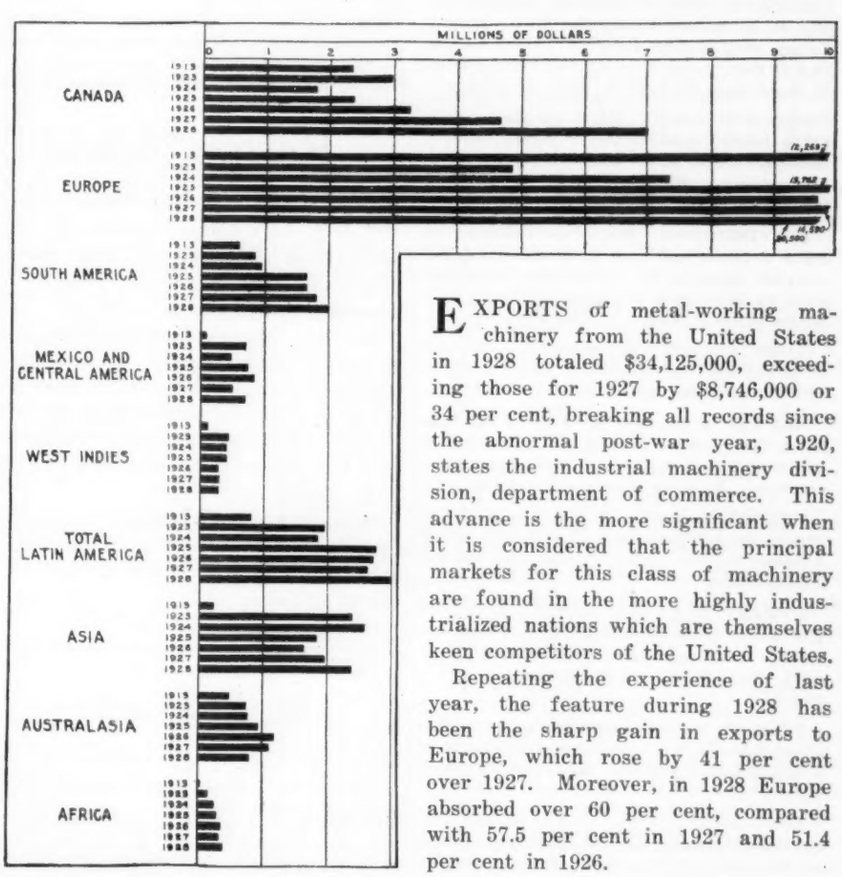
Washington, May 28.—Bookings of commercial steel castings in April were the highest of any month this year. Following is a comparison by the department of commerce:

	—Bookings—		—Production—	
	†Total net tons	Railway specialties	†Total net tons	Railway specialties
1928				
April	84,086	32,810	86,016	32,619
May	86,796	34,995	93,333	36,599
June	72,107	22,597	91,746	30,742
July	66,992	20,483	78,643	27,501
Aug.	81,286	25,171	87,742	27,157
Sept.	82,762	35,234	75,761	25,311
Oct.	78,860	26,736	87,952	29,471
Nov.	84,742	34,545	82,385	30,799
Dec.	96,373	43,928	82,203	26,484
Total	1,000,283	389,863	1,021,956	371,564
1929				
Jan.	124,313	64,809	93,413	35,689
Feb.	115,539	58,903	97,468	40,282
Mar.	130,271	60,677	114,632	43,348
April	142,522	74,425	118,986	52,483

†For tonnage of miscellaneous castings deduct Railway Specialties from the total.

The National Association Sheet Metal Contractors will conduct its twenty-fifth annual convention at the Lord Baltimore hotel, Baltimore, June 3-7.

1928 Exports of Metalworking Machinery Increase 34 Per Cent



EXPORTS of metal-working machinery from the United States in 1928 totaled $34,125,000, exceeding those for 1927 by $8,746,000 or 34 per cent, breaking all records since the abnormal post-war year, 1920, states the industrial machinery division, department of commerce. This advance is the more significant when it is considered that the principal markets for this class of machinery are found in the more highly industrialized nations which are themselves keen competitors of the United States.

Repeating the experience of last year, the feature during 1928 has been the sharp gain in exports to Europe, which rose by 41 per cent over 1927. Moreover, in 1928 Europe absorbed over 60 per cent, compared with 57.5 per cent in 1927 and 51.4 per cent in 1926.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BRIDGEPORT, CONN.—Columbia Nut & Bolt Co., 1550 Railroad avenue, recently had its plant badly damaged by fire.

FAIRFIELD, CONN.—H. A. Seymoure Co., manufacturer of metal novelties, plans a 1-story plant, 40 x 200 feet, on Post road.

STAMFORD, CONN.—Kings County Foundry, Fairfield avenue, has plans for a 2-story addition, 50 x 100 feet. Estimated cost $50,000.

BALTIMORE—Enterprise Wire & Iron Works Inc., 423 North High street, has plans for a 1-story plant addition, 35 x 90 feet.

HAGERSTOWN, MD.—Pangborn Corp., Crestline street, manufacturer of foundry equipment, is having plans prepared for a plant addition. T. W. Pangborn, is president.

SYKESVILLE, MD.—Springfield state hospital, Dr. J. C. Clarke, superintendent, Sykesville, is having plans prepared for water filtration plant.

AGAWAM, MASS.—Agawam Airport Inc., care H. L. Bowles, Springfield, Mass., plans a 2-story steel airport terminal with basement, 80 x 80 feet, to cost about $75,000. W. E. Dibble, 23 Besse place, Springfield, Mass., is architect.

NORTH READING, MASS.—Department of public health, State House, is taking bids for reconstruction of power house as part of building program. Stevens & Lee, 45 Newbury street, Boston, are architects.

PROVINCETOWN, MASS. — Provincetown Light & Power Co., care H. F. McDonald, has awarded contract for construction of power plant on State road to Chase & Gilbert, Park Square building, Boston. (Noted April 4.)

GARWOOD, N. J.—Aluminum Co. of America is taking bids for two 1-story plant additions, 60 x 120 feet, and 25 x 150 feet.

NEWARK, N. J.—Sonatron Tube Co., 57 State street, has plans for a 6-story addition, 68 x 120 feet, Siegler & Greenburg, 164 Market street, are architects. Estimated cost about $175,000.

NEWARK, N. J.—Beaver Mfg. Co., 625 North Third street, advises it has awarded contract for a 2-story addition to Doe Wathey Co., 178 Arlington avenue.

NEWARK, N. J.—American Platinum Co., 231 New Jersey Railroad avenue, F. A. Phelps, architect, 21 Fulton street, is taking bids for 2-story plant addition with basement 40 x 125 feet.

TRENTON, N. J.—Magnetic Pigment Co., Cass street, plans installation of power equipment in proposed 4-story addition. Estimated cost about $90,000.

LONG ISLAND CITY, N. Y.—National Casket Co., 470 Jackson avenue, plans 5-story plant, at Jackson and Forty-first avenue. Stein & Vitolo, 56 West Forty-fifth street, New York, are architects. Estimated cost $200,000.

LONG ISLAND CITY, N. Y.—J. & S. Paynier, 835 Humboldt street, Brooklyn, N. Y., plans construction of a 2-story smelter and casting shop, 75 x 180 feet, at Borden avenue and Haywood street. J. M. Klein, 65 Court street, Brooklyn, is architect.

NEW YORK—New York Steam Corp., 280 Madison avenue, is having plans prepared for a steam plant at 222-234 Pearl street.

NEW YORK—Amtorg Trading Co., 165 Broadway, Soviet Russian trade organization, has awarded contract with Albert Kahn, 1000 Marquette building, Detroit, to design a tractor plant, to be erected in Russia. Estimated cost about $3,000,000.

NEW YORK—New York Central railroad, care J. B. Freeman chief engineer, 466 Lexington avenue, proposes to build 7-story, 200 x 200 feet automobile repair shop and garage, at 300 West Fifteenth street. Plans are by F. S. Parker, 119 East Fifty-seventh street.

NEW YORK—Department of parks, Arsenal building, Central park, plans to build a 5-story power plant. Plans by Trowbridge & Livingston, 527 Fifth avenue.

NEW YORK—C. L. Peillon, 125 East Seventieth street, has plans for 2-story garage and repair shop, 98 x 100 feet, at 542 West Twenty-sixth street. F. S. Parker, 119 West Fifty-seventh street, is architect.

ST. GEORGE, (STATEN ISLAND) N. Y.—Merritt, Chapman & Scott, 135 Edgewater street, has plans for construction of machine shop, also carpenter shop. Baker & Spencer, 17 Battery place, New York, are architects. Estimated cost $85,000.

BUTLER, PA.—Austin Motor Co. Ltd. of England is negotiating with officials of the Standard Steel Car Co. for purchase of a unit of latter's plant here. Plant consists of a building 800 feet in length with additional ground space.

CARNEGIE, PA.—W. C. Hardesty Co. Inc., Rosslyn Farms, near here, plans to install power equipment in connection with rebuilding part of grease and oil works, recently damaged by fire.

HAZLETON, PA.—United Filters Corp., care C. R. Stanley, has awarded contract for 2-story plant addition to R. H. Woelfel, American Bank building, Hazleton.

PHILADELPHIA—Janney Cylinder Co., 7425 State road, has plans for a 1-story machine shop addition.

PHILADELPHIA—City is taking bids for power plant at Juniper and Pine streets. William Linker Construction Co., 735 Cherry street, is estimating. Private plans.

PHILADELPHIA—Ford & Kendig Co., 1428 Callowhill street, has purchased tract at Fifty-fourth to Fifty-sixth street, Gibson and Elmwood avenue to Baltimore & Ohio railroad, where it will build a fabricating plant, according to Leighton Ford president. It is reported plans are nearly completed.

STROUDSBURG, PA.—Pocono Metal Mfg. Co., Third street, has started construction on a foundry addition.

SUNBURY, PA.—Philadelphia & Reading Coal & Iron Co., Reading terminal, Philadelphia, has acquired property at Herndon, near Sunbury, as site for proposed generating plant. (Noted March 21.)

Resale News

EQUIPMENT of the Phillips Custom Body Corp., Warren, O., sold at auction May 21 by Gus Rosen, Cleveland, auctioner, was disposed of piecemeal and widely scattered. The material, largely woodworking machinery, with some metalworking equipment and steel products, was bid at good prices by buyers from Detroit, Pittsburgh, Cleveland and other points and the sale netted a satisfactory sum.

* * *

Machinery and equipment of the Butler Bolt & Rivet Co., Butler, Pa., will be sold June 6 by Industrial Plants Corp.

Sales Calendar

June 6—Auction of machinery and equipment of Butler Bolt & Rivet Co., Butler Pa.

East Central

BENSENVILLE, ILL.—Willis Motor Corp., First avenue and Main street, is having plans prepared for a 1-story plant, 60 x 1600 feet. G. E. Larson, 5154 North Clark street, Chicago, is architect. Estimated cost about $1,200,000.

CHICAGO—Hanna Engineering Co., 1757 Elston avenue, manufacturer of riveters and air hoists, has awarded contract for plant addition, 45 x 288 feet.

CHICAGO—Nordendale Mfg. Co., 1638 North Paulina street, has awarded construction contract for a 1-story plant addition, 70 x 220 feet to Chicago Industrial Construction Co., 53 West Jackson boulevard. (Noted May 2.)

CHICAGO—William L. Anderson has taken title to 15-acre tract here for an Ohio foundry. Property comprises block bounded by 109th and 110th streets and Burley and Brandon streets. Hodge, Nicholson & Porter Inc., 231 South LaSalle street, represented all parties in the transaction.

CICERO, ILL.—Scott Bansbach Machinery Co., 130 South Clinton street, Chicago, has awarded construction contract for a 1-story plant, 75 x 125 feet, at Twentieth street and Forty-seventh avenue, here.

DECATUR, ILL.—Faries Mfg. Co., East Grand avenue, manufacturer of electrical fixtures, etc., has plans for building plant addition.

ROCKFORD, ILL.—Rockford Iron Works, 642 Race street, Isaac Patrick president, has awarded contract for 2-story foundry addition, to Holm Page Co., 2117 Kishwaukee street.

ROCKFORD, ILL.—Sall Bros., 2320 Kishwaukee street, pattern makers, has awarded contract for 1 and 2-story addition, to Linden & Son, 1110 Tenth street, Rockford. R. L. Emerson, is secretary and treasurer.

SOUTH CHICAGO, ILL.—Kensington Steel Co., 505 Kensington avenue, will build a 1-story foundry, 30 x 104 feet.

ST. CHARLES, ILL.—Thomas Engineering & Mfg. Co. plans construction of a 2-story addition, 50 x 125 feet. Wolf, Sexton, Harper & Trueax Inc., Tribune Tower, Chicago, is expected to award contract soon.

DECATUR, IND.—Decatur Castings Co., James Cowen manager, has awarded contract for plant addition, 80 x 180 feet, to the Austin Co., 16112 Euclid avenue, Cleveland.

FT. WAYNE, IND.—Dudlo Mfg. Co., manufacturer of enamel wire, coils, etc. has awarded construction contract for plant addition, 167 x 210 feet, to the Indiana Engineering & Construction Co., Ft. Wayne.

INDIANAPOLIS—Plaza Oil Co., 121 East Maryland street, has awarded construction contract for a machine shop and garage, 135 x 165 feet. Vonnegut, Bohn & Mueller, Indiana Trust building, are architects.

DETROIT—Freuhauf Trailer Co., 10940 Harper avenue, has plans for 1-story plant addition. Electric motors and equipment will be required. Albert Kahn, 1000 Marquette building, is architect.

DETROIT—Clayton & Lambert Mfg. Co., 6282 Beaubien street, manufacturer of gasoline torches, has awarded contract for plant addition on French road to J. A. Utley, 729 Penobscot building.

DETROIT—Packard Motor Car Co., 1580 East Grand boulevard, plans addition to power plant. Estimated cost about $175,000 with equipment.

FARMINGTON, MICH.—House of Providence, 2500 West Grand boulevard, Detroit, has awarded contract for building group of buildings including power house to H. G. Christman Burke Co., Fisher building, Detroit. Estimated cost $750,000.

GRAND RAPIDS, MICH.—Metalcraft Heater Corp., subsidiary of Grand Rapids Metalcraft Corp. has been formed to manufacture automobile heaters. A 2-story building has been obtained so constructed that additional stories can be added to allow for plant expansion.

BELLEFONTAINE, O.—Fisher Brass Co., Lawrence street, is erecting a 2-story plant addition.

CINCINNATI—Sawbrook Steel Castings Co., Shepard and McWhorter streets, advises it has awarded contracts for extension to main foundry building. Equipment has been purchased.

CLEVELAND—Lorain Automatic Icer Co., manufacturer of electric refrigerators, has leased 25,500 feet of floor space for manufacturing purposes at 3957 St. Clair avenue, Cleveland.

CLEVELAND—Gravity Carburetor Co., 3062 East Ninety-third street, is having plans prepared for a 1-story plant addition, by Kalsch & Hoeffler, architects, 4500 Euclid avenue, Cleveland.

CLEVELAND—Cleveland Automatic Machine Co., 2269 East Sixty-fifth street, has completed plans for a plant addition. Wright & Nice, 4339 South Saginaw street, Flint, Mich., are architects.

CLEVELAND — Christian-Schwarzenberg & Gaede, architects, 1900 Euclid building, will soon let contracts for group of buildings on Clark avenue, for McGean Chemical Co., 1822 Keith building, Cleveland.

CLEVELAND—Hillwood Mfg. Co., 21700 St. Clair avenue, manufacturer of wire nails, tacks, etc., has awarded contract for two 1-story additions, 32 x 150 feet, and 50 x 96 feet, to W. Frantz, 3914 Forestwood avenue, Cleveland. Some additional equipment will be purchased, according to C. K. Hill, president.

DAYTON, O.—Duriron Co., North Findlay street, manufacturer of steel castings, has plans for a 1-story plant addition to cost about $30,000.

ORRVILLE, O.—Board of public affairs is having plans completed for a 1-story addition to municipal power plant. Hadlow, Hughes, Hick & Conrad, 806 Euclid avenue, Cleveland, are engineers.

SPRINGFIELD, O.—Springfield Mfg. Co., Bechtle and Columbia streets, manufacturer of ring gears, recently had its plant damaged by fire.

TOLEDO, O.—Mentzler Ornamental Iron Works Inc., 1878 Front street, plans expansion program. George W. Mentzler is president.

TOLEDO, O.—Doehler Die Casting Co., Prospect and Smead avenue, will construct plant addition. Estimated cost about $500,000.

TOLEDO, O.—Mather Spring Co., 755 Castle boulevard, will build a plant for manufacture of automobile bumpers. Estimated cost about $1,000,000.

TOLEDO, O.—Standard Locomotive Equipment Co., recently incorporated, care W. W. Campbell, Ohio building, C. J. Pilliod, advises it has plans for construction of a plant, and purchase of additional equipment. (Noted May 23.)

WARREN, O.—Brainard Steel Corp., recently formed to acquire the J. W. Brainard Steel Co., plans to expand the new plant. Company will enlarge production of patented galvanized items, and new equipment and machinery will be added. E. T. Sproul is president.

RACINE, WIS.—Belle City Malleable Iron Co. has awarded construction contract for a 2-story plant addition, 60 x 80 feet, to Nelson & Co., Racine.

SOUTH MILWAUKEE, WIS.—Bucyrus-Erie Co. has awarded contract for construction of an addition to its machine and erecting shop, 85 x 150 feet, and a locomotive roundhouse, 61 x 140 feet, which with equipment improvements will cost about $200,000.

Southern States

BIRMINGHAM, ALA.—Connors Steel Co., Empire building, has plans for a 1-story plant addition, 72 x 260 feet. Estimated cost about $60,000 including equipment.

BIRMINGHAM, ALA.—Southern Natural Gas Co., B-M building, has awarded contract for construction of pipe line from Richland field in Louisiana, to Birmingham, and to Atlanta, Ga., to Ford, Bacon & Davis Inc., 30 Broadway, New York. Plans include three compression stations, each 5000 horsepower. Estimated cost $35,000,000.

BIRMINGHAM, ALA.—Virginia Bridge & Iron Co., Roanoke, Va., plans installation of power

equipment in proposed new steel fabricating plant here. Estimated cost $1,000,000.

MENA, ARK.—Southwestern Gas & Electric Co. has awarded contract for enlarging its power plant here to L. E. Myers Construction Co., Allen building, Dallas, Tex.

OSCEOLA, ARK.—Board of commissioners, sewer improvement district 5, is receiving bids for construction of sewage disposal plant and pumping stations. T. H. Allen, 65 McCall street, Memphis, Tenn., is engineer.

MAUD, OKLA.—City plans election June 4 to vote on $75,000 bond issue for waterworks improvements including pumping equipment. Long & Co., Concord building, Oklahoma City, Okla., are engineers.

STILLWATER, OKLA.—City has awarded contracts for power plant additions, 28 x 41 feet, and 52 x 52 feet, to L. J. Jardot, Stillwater.

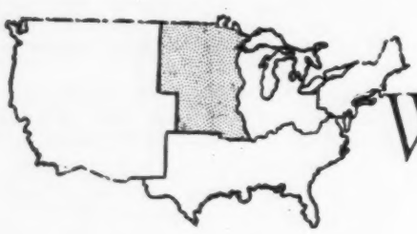
ISABELLA, TENN.—Ducktown Chemical & Iron Co., care W. F. LaMareaux, plans immediate improvements and extensions to its plant. Contract for acid plant, reported awarded to Chemical Construction Co., Charlotte, N. C. Estimated cost about $1,000,000.

GROVETON, TEX.—City plans election June 4 to vote on $25,000 bond issue for waterworks improvements including pumping equipment.

HOUSTON, TEX.—Hughes Tool Co. has awarded construction contract to Houston Ready Cut House Co. for a plant addition, 140 x 400 feet, at Capitol avenue and Hughes street. Estimated cost about $100,000.

PORT ARTHUR, TEX.—Gulf Refining Co., Frick building, Pittsburgh, has awarded contract for power plant at its refinery here to United Engineers & Constructors Inc., 112 North Broad street, Philadelphia. Plant will have three boilers.

EAST RADFORD, VA.—Atlantic Gas Co., Lewis building, Philadelphia, has plans for construction of power plant here. Estimated cost about $750,000.



West Central

CLARION, IOWA.—Municipal Utilities Co., H. T. Corry general manager, will soon start construction of electric power plant here. Estimated cost $160,000. (Noted Feb. 7.)

DAVENPORT, IOWA—Linde Air Products Co., 530 Howell street, has awarded contract for a compressed gas plant, 60 x 100 feet, to John Soller Construction Co., Masonic Temple Davenport.

WICHITA, KANS.—Union Carbide & Carbon Corp., 30 East Forty-second street, New York, has awarded contract for a plant here. Estimated cost about $125,000.

BENSON, MINN.—City council has plans for improvements to municipal electric light and power plant including additional equipment. Druar & Milinowski, Globe building, St. Paul, are engineers.

MINNEAPOLIS—Minneapolis-Honeywell Regulator Co., 2747 South Fourth street, manufacturer of heat control devices, is doubling the size of its plant here.

GALT, MO.—City voted $20,000 bond issue for extensions and improvements to electric light plant. W. B. Rollins & Co., 339 Railway Exchange building, Kansas City, Mo., is engineer.

KANSAS CITY, MO.—Universal Aviation Corp., 430 Gray street, St. Louis, has plans for two 1-story steel hangars, 156 x 175 feet. C. A. Smith, 800 Finance building, Kansas City, is architect. Estimated cost $125,000.

MARSHALL, MO.—Nicholas-Beasley Airplane Co. Inc., English and North streets, has awarded contract for 1-story addition, 50 x 155 feet. R. Nicholas is president. (Noted April 11.)

MARYVILLE, MO.—Maryville Milk Co. plans installation of power equipment in proposed creamery. Douthitt Engineering Co., 139 North Clark street, Chicago, is engineer. Estimated cost about $200,000.

CREIGHTON, NEBR.—Western States Utilities Co., H. Hard president, Central City, Nebr., has awarded construction contracts for electric power plant here, and ice plant at Elgin, Nebr., to Betts-Blumer Engineering Co., Kearney, Nebr.

MITCHELL S. D.—City, care T. Eascott auditor, has plans for construction of filtration plant.

Western States

CULVER CITY, CALIF.—Joseph Kreutzer Corp., manufacturer of airplanes, announced completion of plans for a new plant here. Construction is to be started immediately.

LONG BEACH, CALIF.—Ford Motor Co., Fordson, Mich., has awarded construction contract for its assembly plant here, to Clinton Construction Co., Stock Exchange building, Los Angeles. Plant will have a dock 500 feet long with conveyor and dock equipment. (Noted March 14.)

LOS ANGELES—West Coast Casket Co., 1495 East Fourth street, plans construction of a 1-story plant, 87 x 250 feet, on Hooper street. F. D. Harrington, H. W. Hellman building, is architect.

SACRAMENTO, CALIF.—C. E. Wright, 1054 Fortieth street, has plans for airport including shops at Twenty-first avenue and Stockton boulevard.

ROSEBERG, OREG.—Oregon Mercury Co. plans to reopen Buena Vista mercury mines near Tiller, Oreg. New machinery and equipment will be installed.

SEATTLE—Washington Air Express Inc. has leased site at Boeing airport, and is having plans prepared for hangar. John Graham, Dexter Horton building, is architect.

SEATTLE—Fisher Body Corp., General Motors building, Detroit, has awarded contract for first unit of plant here to Austin Co., Dexter Horton building. Estimated cost about $500,000.

Canada

WINNIPEG, MAN.—Hinde & Dauche Paper Co., Ltd., 43 Hanna street, Toronto, Ont., has plans for building a plant here, will include boiler plant. Estimated cost about $1,000,000.

SAULT STE. MARIE, ONT.—Algoma Power Co. has awarded contract for electric plant here to Lang & Ross, 527 Queen street, east. Estimated cost about $150,000.

WINDSOR, ONT.—Dominion Screw Co., subsidiary of Federal Screw Works, 3401 Martin street, Detroit, and Canadian Metalcraft Corp., branch of Metalcraft Corp of Grand Rapids, Mich., will occupy new plant buildings now under construction on McDougal street, according to N. L. Olsen, owner of the property.

Recent Incorporations

BATAVIA, ILL.—Rogers Bros. Co., North Water street, has been incorporated with $50,000 capital to engage in galvanizing and treatment of steel and other metals, by D. F. Rogers.

CHICAGO—Crom Die Cast Co., 900 Spaulding avenue, has been incorporated with $150,000 capital to manufacture and sell metals, by Frederick Meier.

CHICAGO—G. A. Ball-Bearing Corp., 4538 Fulton street, has been incorporated with $75,000 capital to manufacture ball-bearings, friction bearings, etc., by H. A. Dormeyer.

CHICAGO—Howard Foundries Inc., 2701 Fulton street, has been incorporated with $1,000,000 capital to engage in general foundry and machine shop business, by Richard H. Mather, John P. Shannon and F. C. Howard.

CHICAGO—Jogger Mfg. Co., 1827 West Twenty-second street, has been incorporated with

$50,000 capital to manufacture and sell joggers for printing presses, machinery and supplies, by Thorey Von Holst.

EVERETT, MASS.—Warren Pipe Co. of Mass. has been incorporated with 5000 shares no par stock to manufacture cast iron pipe, castings and fittings, and deal in steel, copper, iron ore and other metals, by Frederick E. Jennings, 45 Milk street, Boston.

LYNN, MASS.—Spofford Machine Co. Inc. has been incorporated with 5000 shares no par stock to manufacture engines and other machinery, and as tool makers, brass founders, metal workers and boiler makers. Stephen E. Spofford, 81 Center street, Lynn, is president.

LOWELL, MASS.—Battery Containers Inc. has been incorporated with 50,000 shares no par stock to manufacture battery containers and machinery, tools, appliances, etc. Richard M. Taylor, 1514 Beacon street, Brookline, Mass., is president.

PITTSFIELD, MASS.—Mays Auto Parts Inc., 12 Adams street, has been incorporated with $25,000 capital to manufacture all kinds of castings, implements, tools, fixtures and machinery. Woodward J. May, 24 Adams street, is president.

DETROIT—Art Forge Co. has been incorporated with $25,000 capital to manufacture and deal in art forgings, by Gustav Mondt, 1308 Gratiot avenue, Detroit.

DETROIT—Baker Specialties Mfg. Co., 2761 Penobscot building, has been incorporated with $50,000 capital to manufacture and deal in loud speakers and lamps, by Harold O. Baker, Pontiac, Mich., and Lloyd A. Beardsley, Detroit.

FLINT, MICH.—Associated Die & Tool Co., 601 West Water street, has been incorporated with $50,000 capital to deal in tools, mechanisms and general machine work, by Lyman H. Gibney, Benjamin Werner and C. A. Riukamp, all of Flint.

JERSEY CITY, N. J.—Audio Vision Appliance Co. has been incorporated with 300,000 shares no par stock to manufacture radio-vision apparatus, by Corporation Trust Co., 15 Exchange place, Jersey City.

NEWARK, N. J.—Arcoil Mfg. Co. has been incorporated with $100,000 capital to manufacture oil burners, by Cohen & Klein, 207 Market street, Newark.

RUTHERFORD, N. J.—Hive Mfg. Co. Inc. has been incorporated with $50,000 capital to engage in toolmaking, by D. Marconi, East Rutherford, N. J.

PHILADELPHIA—Carolina Sheet Metal Corp. has been incorporated with $25,000 capital to manufacture and sell sheet metal products, including all kinds of heating apparatus and ventilating systems. William R. Murphy, 226 Valley road, Merion station, Pa., is treasurer.

PITTSBURGH—Reliance Steel Products Co. has been incorporated with $100,000 capital to manufacture, assemble, install, etc., products of iron or steel. Max Pincus, 5854 Hobart street, Pittsburgh, is treasurer.

WHEELING, W. VA.—Inland Boat Co. of Wheeling has been incorporated with $10,000 capital to construct boats and barges, by John Oscar Schenerlein and C. W. Bates, 77 Twelfth street, Wheeling.

CALGARY, ALTA.—Radio Utilities Ltd. has been incorporated to manufacture and deal in electrical, automotive, radio wireless and magnetic articles, with $50,000 capital stock, by Percy L. Sanford, Alexander Hannah, James Chambers, all of Calgary.

HAMILTON, ONT.—Jobborn Tool Co. Ltd. has been incorporated to manufacture and deal in tools, with $50,000 capital stock. Provisional directors are Thomas H. Simpson, Frederick R. Murgatroyd, Eva Ambrose, all of Hamilton.

SARNIA, ONT.—Culvert & Steel Products Co. of Canada Ltd. has been incorporated to carry on business as manufacturer and foundryman, with $40,000 capital stock. Provisional directors are Leonard V. Sutton, Gertrude H. Sinclair, Aileene Ritchie, all of Toronto, Ont.

TORONTO, ONT.—Boiler Service & Supply Co. Ltd. has been incorporated to manufacture and deal in furnaces, stoves, boilers, etc., with $50,000 capital; provisional directors are Charles D. Waldon, Gareth E. Maybee, Norman R. Tyndall, all of Toronto.

TORONTO, ONT.—Maple Leaf Electric Tools Ltd. has been incorporated to carry on the business of electrician, mechanical engineer, and manufacturer, with $50,000 capital stock, by Arthur R. Sproule, Reginald G. Thomas, Grace E. Knight, all of Toronto.

MONTREAL, QUE.—British Ropeway & Engineering Co. of Canada Ltd. has been incorporated to carry on the business of engineer, founder, and manufacturer of wire and wire goods, with 100 shares of no par value, by Alexander Chase-Casgrain, Errol M. McDougall, and Victor M. Lynch-Staunton, all of Montreal.

MONTREAL, QUE.—Brilliant Electric Sign Co. Ltd. has been incorporated to manufacture and deal in electric, luminous, and other signs and appliances, with $200,000 capital and 2000 shares of no par value, by Pierre Decary, Montreal; Hercules Decary, Dorval; Jean-Marie Thesserault, Quebec.

MONTREAL, QUE.—Curtiss-Reid Flying Service Ltd. has been incorporated to manufacture and deal in aeroplanes, seaplanes, flying boats, etc., with 10,000 shares of no par value, by William S. Lightall, Hampstead; Ernest F. Peacock, Marshall S. McLean, both of Montreal.

MONTREAL, QUE.—Canadian Automatic Forced Draft System Ltd. has been incorporated to take over the business of Canadian Automatic Heating System Mfg. Co. with $600,000 capital and 100,000 shares of no par value, by James J. Monahan, Abe Seidman, Manuel A. Mendel and others all of Montreal.

New Trade Publications

TRACTORS—Caterpillar Tractor Co., San Leandro, Calif., has issued another number of its serial bulletin, devoted to pictures of caterpillar tractors engaged in varied lines of work all over the world.

RIVETERS—Hanna Engineering Works, Chicago, preaching virtues of riveted construction, has issued a bulletin showing the various types of riveters of its manufacture suited to different kinds of construction.

PIG IRON—Bethlehem Steel Co., Bethlehem, Pa., has published a revised edition of its Mayari pig iron book and a booklet on silvery Mayari pig iron. These give description of the makeup of the ores from which the pig iron is smelted and advantages from its use in castings.

STARTERS—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has published a leaflet on its nonreversing magnetic starters, for wound rotor induction motors. The folder describes the application, operation and construction of the mechanism.

CRANE CHAINS—American Chain Co. Inc., Bridgeport, Conn., has prepared a leaflet giving information and data on its chains for cranes, dredges and heavy duty. It contains tables showing links per foot, weights, proof tests and safe working loads of various sizes.

GRINDING APPARATUS—Stow Mfg. Co., Binghamton, N. Y., recently has published a folder on its portable, flexible shaft, grinding and polishing units. It contains illustrations of two types of machines and shows many of its special shape rotary files.

MANGANESE STEEL—American Manganese Steel Co., Chicago, has issued a folder on the shock-abrasion and corrosion alloys that it manufactures. The folder tells some of the uses of those kinds of steel and gives illustrations of several different types of castings.

LUBRICATION—In the current issue of its house organ, *Black and White*, E. F. Houghton & Co., Philadelphia, presents results of recent research in and theories of lubrication. It contains much matter of value to those interested in the matter of lubrication in machinery.

FORGINGS—Internal displacement forgings with a concentric hole seven and a half diameters deep, produced by one of its machines in a single heat, are illustrated in a current bulletin by the National Machinery Co., Tiffin, O. Illustrations show the completed forging and the dies in which it was produced.

BLOW GUN—Schutte & Koerting Co., Philadelphia, has issued an illustrated bulletin on its blow gun, designed for using compressed air economically for dusting and blowing where pressure may be lower than that maintained on the air lines. Colored plates illustrate the method of mixing compressed and atmospheric air in the nozzles.

MANGANESE STEEL—American Manganese Steel Co., Chicago and its subsidiary company, the Southern Manganese Steel Co., St. Louis, has issued an 8-page booklet on new applications for manganese steel. Uses described include dipper teeth, feeders for use in mines, skid rails, road ripper teeth, drag chains, road markers, etc.

HOISTS—American Engineering Co., Philadelphia, in a current bulletin describes and illustrates its line of electric hoists designed to handle loads from ¼-ton to 12 tons. The folder contains several illustrations of typical installations and also a table giving the capacities and ratings of the various hoists which that company manufactures.

TURBINES—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued a bulletin on one of its types of mechanical drive turbines. Capacities are five to 50 brake horsepower at 650 to 4000 revolutions per minute. They are used for driving centrifugal pumps, blowers and other rotary units which can be directly connected.

STEEL JOISTS—Truscon Steel Co., Youngstown, O., is distributing a bulletin on its nailer joist, a new product designed for use in homes, stores, schools and other structures where wood floors are used. The rough flooring is nailed directly to a wood screed imbeded in the top chord of the steel joist. The catalog pictures the joist with details of a firesafe floor. Technical pages give mechanical and engineering properties, dimensions and tables of safe loads.

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

Butt Weld

	Black	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	28	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. On 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¾ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3½ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Net prices per foot f.o.b. Pittsburgh Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	**12-gage**	**15c**
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{3}{8}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{3}{8}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c

Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet.....No extra

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

LOGEMANN SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price*, and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.

LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.

"Where-To-Buy"

A classified by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

ABRASIVES (Polishing)
Carborundum Co., The, Niagara Falls, N. Y.
Norton Co., Worcester, Mass.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 410 Oliver Bldg., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Driver-Harris Co., Harrison, N. J.
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM BRONZE (Acid Resisting)
Duriron Co., Inc., The, Dayton, Ohio.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Petroleum Iron Works Co., The, Sharon, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.

ANVILS (Cast Steel)
West Steel Casting Co., 805 E. 70th St., Cleveland, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

ARCHES (Suspended)
Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.

ARCHITECTS (Industrial)
Austin Co., The, 16112 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., 3675 E. 78th St., Cleveland.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARS (Alloy)
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.

BARS (Concrete Reinforcing)
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

BARS (Iron)—See IRON (Bar)

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Pacific Coast Steel Co., Hunter-Dulin Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Youngstown Sheet & Tube Co., Youngstown, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Phoenix Iron Co., The, 20 So. 15th, Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

BEARING METAL
Williams Alloy Products Co., The, Elyria, Ohio.

BEARINGS (Ball)
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.
Williams Alloy Products Co., The, Elyria, Ohio.

BEARINGS (Motor)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller)
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS AND BUSHINGS (Brass and Bronze)
Erie Bronze Co., 402 W. 19th St., Erie, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Construction Co., The, 1301 Koppers Bldg., Pittsburgh, Pa.

BILLETS (Alloy and Carbon Steel)
Central Alloy Steel Corp., Massillon, O.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Washburn Wire Co., Phillipsdale, R. I.

BILLETS (Die Stock Steel)
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.

BILLETS (Forging)
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Erie Forge Co., Erie, Pa.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Wood, Alan, Steel Co., Conshohocken, Pa.

BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above